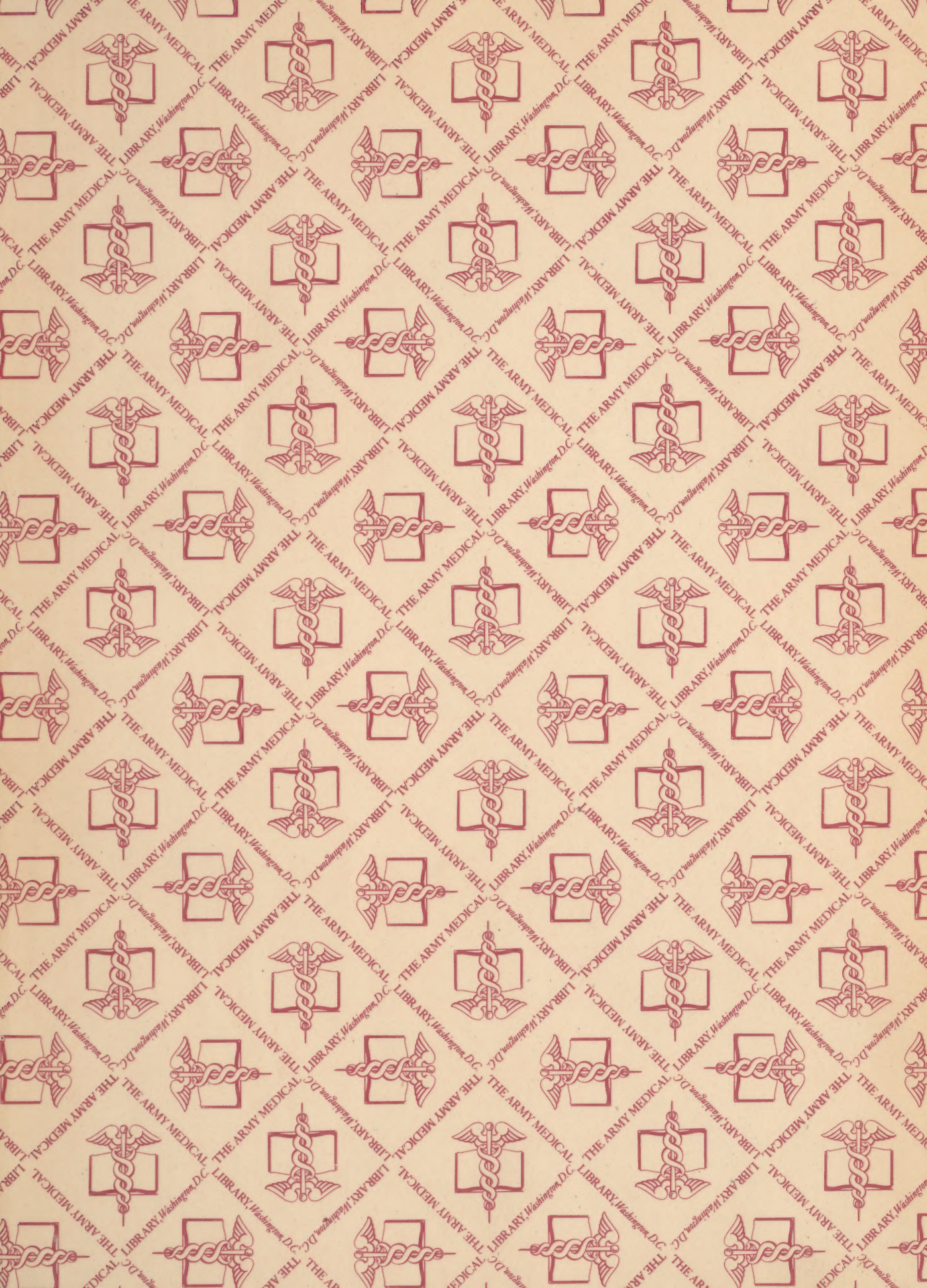
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SPECIAL REPORT

to the

CHIEF OF THE BUREAU OF MEDICINE AND SURGERY

U. S. NAVY

of

UNITED STATES NAVAL MEDICAL SERVICE IN THE INVASION OF NORMANDY

6 JUNE 1944

by

Captain George B. Dowling, (MC), U. S. Navy

Force Surgeon TF122 and WNTF

11 January 1945

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To: All Ships and Stations

Subj: Secret and Confidential Reports, Downgrading of

Ref: (a) Article 76(5)(b), Navy Regulations, 1920

1. The following secret and confidential reports are hereby downgraded as indicated:

Report	Present Classification	Downgraded to
"United States Naval Medical Service in the Invasion of Normandy," by Captain G. B. Dowling (MC) USN.	Secret	Restricted

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PART I

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INTRODUCTION

1. The Normandy landing of June 6, 1944, constituted the largest single amphibious landing in history. It was conducted as a joint British-American operation in order to secure a lodgment on the continent from which further operations would be conducted.

2. The Western Naval Task Force, commanded by Rear Admiral Alan G. Kirk, U.S.N., constituted the American Naval component of the Allied Expeditionary Force. The task of this force was to establish firmly the First U.S. Army ashore at designated areas on the coast of Normandy in order:
(a) To ensure the capture of the port of Cherbourg with minimum delay; and
(b) to assist in securing a lodgment area as a base for further operations.

3. A report of the U.S. Naval medical service in this operation is herewith rendered in detail in order to record the matters of professional interest and to provide historical reference.

4. Information contained herein has been taken from the files of the Force Medical Officer of Task Force ONE TWO TWO (Operationally designated as The Western Naval Task Force).

5. On the scene planning commenced as early as 1 December 1943; the assault forces landed on enemy territory on 6 June 1944; Task Force ONE TWO TWO was dissolved on 10 July 1944.

THE TASK FORCE

6. The operational chain of command was a direct line from Supreme Allied Command (SAC) through the Allied Naval Command Expeditionary Force (ANCXF) to the Eastern and Western Naval Task Forces. Logistic support to the U.S. Navy was provided by Commander, U.S. Naval Forces in Europe (12th Fleet). Under ANCXF, the Eastern Naval Task Force (ENTF) (British) and the Western Naval Task Force (WNTF) (U.S.) were parallel commands.

7. The preoperational organization of the WNTF (TF122) consisted of two fundamental sections, namely: (a) The Task Force Headquarters, concerned with planning; and (b) the Eleventh Amphibious Force, concerned with training and preparation. The latter was divided into subordinate commands which included Landing Craft and Bases; Amphibious Training Centers; Beach Battalions; Transport Force; Support Groups, etc. Through these commands, it was possible to concentrate effort in developing specialized doctrine and technic. Operationally, the task force consisted of two assault forces, a follow-up force and a service force.

8. Medical services of The Western Naval Task Force were designed to support the operation. The primary responsibilities of these services were as follows: (a) Medical service to all attached and embarked personnel between the ports of embarkation and the assault beaches; (b) seaward evacuation and hospitalization afloat within the combat zone; and (c) medical services operating jointly with the ground force to all personnel in the beach area. To fulfill the mission, it was necessary to plan, prepare, organize, train, supply and equip the medical elements of the force for the task. The final medical plan was a natural culmination of this preoperational preparation.

PART II

PLANNING PHASE

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PREPARATION

9. The Staff Medical Officer of Task Force ONE TWO TWO arrived in the European Theater of Operations 29 November 1943. The following three months were devoted entirely to developing an Estimate of the Situation. This entailed a concentrated effort in many fields. Personal contacts were made with medical officers of the U.S. Army, Navy and Allied command-echelons concerned. Inspection tours were made to all bases. Locations and facilities were studied to determine those most satisfactory for use during the operation. The completed estimate was submitted to the task force commander on 1 March 1944. (See Part VI, Appendix A)

10. Based on the revelations of the estimate, effort was concentrated on the following:

a. Table of responsibilities between the U.S. Navy and U.S. Army.
b. Estimate of casualties.
c. Casualty-evacuation plan and casualty-recording plan.
d. Logistic plan:
   i. Personnel requirements, procurement and training.
   ii. Materiel requirements and procurement.
e. Tentative medical plan.

11. The value of medical participation in the operational planning of the assault was recognized by Admiral Kirk and thus, very early in the planning phase the force medical officer and selected assistants were given the highest operational security rating, allowing them complete access to all operational plans and pertinent information.

FACILITIES

To describe the preparation chronologically, the first problem was to determine the facilities at hand.

12. VESSELS.

12.1 LSTs.

i. It was apparent that LSTs would outnumber any other type of vessel, suitable for trans-channel casualty evacuation to be employed in the assault. They would shuttle to and from France through one auxiliary and two main ports in Southern England.

ii. The anticipated number to be involved in the assault fluctuated greatly during the planning phase. Since no definite figure could be determined and the estimated number varied from 90 to 110, 100 was the figure used for planning medical service. The operational loss of LSTs was estimated at 10%.

iii. During early planning, various tactical plans for the operational employment of LSTs were adopted and then were changed. Each such change necessitated a complete review of the medical service.

iv. The state of readiness (structural conversion to casualty-carrying type) could not be fully known until the vessels arrived in the theater. LSTs began arriving as early as December 1943. Of the 62 authorized by CNO to be converted in the United States, 2 arrived unconverted. Six of these converted were later transferred to the ENTF (British). Later 23 additional LSTs were authorized to be converted in the U.S., the work being put on a "not to delay basis". This necessitated individual inspection of these ships as they arrived in the theater and additional work for the already overworked local repair bases.

v. Conversion of strictly assault LSTs to include casualty-handling facilities, as utilized in this operation, resulted from experiments conducted by the Planning Division of the Bureau of Medicine and Surgery conjointly with the SIXTH Amphibious Force during the fall of 1943. Basic structural conversion consisted of installation of the following: (a) Demountable brackets to accommodate 147 litters arranged in tiers of 3 high, 24 tiers along the starboard bulkhead and 25 along the port bulkhead of the tank deck. (b) Plumbing and wiring in the after port corner of the tank deck for one slop sink, one light over sink, double electric outlet and folding counter for portable sterilizer and trays; these fixtures were to be protected and enclosed by a removable expanded-metal cage. (c) Suitable stowage facilities for litters and bracket arms on lateral bulkheads. (d) Two mounting brackets for Wilmot-Castle operating lights mounted in a suitable location over a mess table in the crew's mess room.

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vi. In accordance with CTF 122 directive, COMLANCRAB, 11th PHIB conducted casualty handling experiments in LSTs as a result of which, equipment and handling technics were developed for the operation. (For a detail of the litter sling and hoist developed and used, see Part VI, Appendix B.)

vii. To the above, American ingenuity added many improvisations which resulted in improved casualty handling.

12.2 HOSPITAL CARRIERS.

i. CNO directed that no U.S. hospital ships be used in cross-channel casualty evacuation.

ii. ANCXF directed that all available British hospital carriers (average casualty carrying capacity - 300) be evenly divided between the Eastern and Western Naval Task Forces and that they operate under the control of the British Ministry of War Transportation.

iii. The number of carriers which would be available could not be determined until very shortly before D day as these carriers either were in use in the various theaters of operations or were in a complete state of overhaul. Only the progress of events would determine the number to be assigned to the WNTF. This later turned out to be five.

iv. Operation plans called for one hospital carrier to be at each of the two assault beaches daily from D plus 1 until no longer required.

v. Indoctrination of hospital carrier crews in our methods of casualty handling could not be accomplished owing to the conditions described above. However, casualty record forms, with complete instructions, were distributed to each.

vi. Operationally, three of these carriers were medically manned with U. S. Army personnel.

12.3 APA's, AKA's, etc.

i. Approximately 11 such vessels would be available for one return trip bearing casualties. Progress of the tactical situation of the operation would dictate their further employment. With one exception, all these vessels had had actual battle experience prior to this operation.

12.4 LCI(L)'s.

i. A preoperational study of the feasibility of using vessels of this type as casualty carriers (cross-channel) resulted in the decision that they would be used in a supplemental capacity only.

12.5 SEA RESCUE CRAFT.

i. Sixty of these craft were assigned to provide for the rescue of the large number of distressed personnel who were expected to be in the shallow-water approaches to the beach. (Crews of these craft were given an intensive instruction course in first-aid just prior to the operation.)

13. AIR SERVICE

13.1 NAVAL AIR.

i. It was decided that the use of any type of amphibious or sea plane during the early assault period would be impractical and extremely hazardous.

13.2 ARMY AIR.

i. Casualty evacuation from France, by Army air elements, was planned to begin on or about D plus 14 days.

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14. BASES.

14.1 Prior to the arrival of TF 122, ComNavEu had established or made plans for sixteen amphibious bases in the United Kingdom as follows: Five advanced amphibious bases, three advanced amphibious sub-bases, one advanced amphibious training base, four advanced amphibious training sub-bases, one amphibious supply base and two sub-depots.

14.2 When TF 122 was organized, these bases operated under the Commander Landing Craft and Bases, Eleventh Amphibious Force. This command represented the service of supply and was responsible for preparing [illegible] landing craft for the operation. Medical facilities of these bases varied in size from 10-bed dispensaries to 500-bed hospitals.

14.3 During execution of the operation, these bases had no relation to the assault force except as elements of the service force. Base medical elements had no part to play in the operational chain of casualty evacuation except in emergency. Plans were made to phase in medical functional components of several bases as far-shore medical elements during the operational follow-up and build-up periods.

14.4 In addition to the bases listed above, three Advanced Amphibious Bases were established at south coast ports specifically for operational use. These three, one of which was designed to serve as a reserve port, were to be the main troop-embarkation and casualty-debarkation ports. (For locations, see Part VI, Appendix M, page 3.) (Southampton - main ports, Portland - main port, Brixham - reserve port)

MEDICAL PERSONNEL

15. AVAILABILITY

15.1 FOR LST's.

i. Navy Personnel:- (a) The number of medical personnel to be available was made clear by the Chief of Naval Operations in October 1943 as follows:

"The following Navy medical personnel will be made available for assignment to each of the sixty (60) LSTs to be used by the U.S. Forces: 2 Medical Officers; 40 Hospital Corpsmen. These medical officers and hospital corpsmen, not to exceed a total of one hundred twenty (120) and two thousand four hundred (2400) respectively, will be sent over to arrive late in February for assignment to casualty carrying LSTs of the U.S. Assault Force.....If additional medical personnel are considered necessary, consult the Commanding General ETOUSA concerning the assignment of Army medical personnel to supplement the Navy contigent.

(b) An additional 25 Navy medical officers were authorized on the basis of additional LST's assigned to the force.

(c) Based on the requirements revealed by the Estimate of the Situation, a redistribution of Navy medical officers in the ETO provided two for each LST in the assault. Hospital corpsmen were assigned on a basis of 20 per LST.

ii. Army Personnel:- By agreement with the Commanding General ETOUSA, one hundred (100) Army medical officers (traumatic surgeons) and two hundred (200) enlisted surgical assistants were assigned to LSTs to assist in medical service during the early phase (10 days) of the assault. This period covered approximately three round trips of each LST.

15.2 FOR APA's:- Complements of medical personnel were adjusted to five (5) medical officers, one (1) dental officer, one (1) hospital corps officer and thirty (30) hospital corpsmen.

15.3 FOR AKA's:- Complements were adjusted to two (2) medical officers and ten (10) hospital corpsmen.

15.4 FOR LCI(L)'s:- Complements were adjusted to two (2) hospital corpsmen.

15.5 FOR BEACH BATTALIONS:- In February, CNO was asked to provide one trained medical beach battalion platoon with equipment for each APA, thus establishing a reserve of trained personnel. Three beach battalions (2nd - 6th - 7th) were assigned to the Force for the operation. The request for reserve personnel was not accomplished.

15.6 FOR CONSTRUCTION BATTALIONS AND DREW UNITS:- These units were phased into the operation in accordance with plans. Their complements of medical personnel were normal.

15.7 DENTAL PERSONNEL:- No additional dental facilities or personnel were required for the operation. It was estimated that those in normal complements in vessels, advanced bases, CB units, etc., would meet the demands and it was known that the Army was providing sufficient facilities and personnel in the assault area.

16. TRAINING.

16.1 LST MEDICAL PERSONNEL.

1. In accordance with Force directives, a school for instruction of Naval medical personnel assigned to LST's was established at the U.S.N. Advanced Amphibious Training Sub-Base, Fowey, Cornwall, England, and activated March 25, 1944.

During the period from March 25 through May 12, five classes were conducted, each group spending one week at the school. 120 medical officers and 2,400 hospital corpsmen took the prescribed course.

The six-day course consisted of: lectures and demonstrations (30 hours); physical hardening program (8 hours); and training films (4 hours).

The training program was under the direct supervision of Lieutenant F. J. FAUX, (MC), USNR., assisted by Lieutenant (jg) C. C. FOWKES, (HC), USN. The members of the instructional staff, together with their respective subjects, are hereinafter listed:

Commander R. C. ELEY, (MC), USNR - Chemical warfare - 12 hours.

Lieutenant F. J. FAUX, (MC), USNR - Historical background of amphibious operations; organization of amphibious forces, afloat and ashore; preparation for battle - 4 hours.

Lieutenant E. V. REYNOLDS, (MC), USNR - Coordination with medical installations on the far and near shores; emergency medical records; care of the dead - 4 hours.

Lieutenant (jg) C. C. FOWKES, (HC), USN - Responsibilities of the Medical Department afloat - 3 hours.

Lieutenant (jg) W. A. DuCHARME, (HC), USN - Care, custody, procurement and replenishment of medical supplies and equipment - 3 hours.

Pharmacist M. A. COMBSTOCK,USN - Practical application of medical and other facilities aboard LST's - 4 hours.

Chief Boatswain's Mate LEWIS, USN - Physical hardening (hikes) - 8 hours.

Base Audio-Visual Section - Training films - "Ship to shore" in 2 reel, "First-aid" in 4 reels - 4 hours.

This course of training was given primarily to indoctrinate LST medical personnel in the medical services attendant to amphibious warfare. It was anticipated that this orientation would point the way for a more unified medical training program among the individual LST's. Upon completion of this training course, the medical groups were returned to their respective LST's to set about preparing their ship's for casualty handling.

11. Medical plans were made and casualty handling was carried out in all Eleventh Amphibious Force training exercises involving LSTs and mock landings. There were four major joint-training-exercises conducted during March and April as well as one which was entirely devoted to medical service. This exercise (code name SPLINT) developed around specifications made by TF 122 Force Medical Officer in a letter from CTF 122 to Commander Eleventh Amphibious Force which is quoted in part:

"It is desired to conduct a training exercise demonstrating casualty handling and evacuation along the following lines.

"The exercise should include such beach medical elements (Army and Navy) as are deemed necessary; DUKW's, landing craft, and one LST completely converted and implemented to carry casualties.....

"The exercise should be conducted separately and so executed as to demonstrate the practical methods of all casualty handling as anticipated during an amphibious assault. It is desired to develop the following:

The technic of handling casualties.
Determine faulty concepts.
Disclose any weaknesses in preparation.
Provide participating elements with a view of the "Chain of Evacuation."
The opportunity of taking a training film for teaching purposes and record.

"It is desired to approximate conditions on the beach and adjacent areas to be expected at H plus 8 hours on D day and that approximately 170 simulated casualties of representative types be handled to an LST lying off shore, utilizing all of the various means for transportation that may be expected to be on the far shore beaches, and employing the normal chain of evacuation.

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"It is suggested that trial runs be held prior to the exercise.

"Chief of Staff, FIRST U.S. Army and Commanding General, Provisional Engineer Brigade Group have approved Army participation in the exercise. Requests for necessary Army elements should be made to Commanding Officer, 5th Engineer Special Brigade.

"All LST and Beach Battalion medical officers available as well as key hospital corpsmen should witness the exercise.

"Chief Surgeon , SHAEF, has manifested great interest in this exercise and believes that a large number of representatives, both line and staff of all echelons will attend."

NOTE: The operation order and medical annex for this exercise is included in Part VI, Appendix C of this report.

Representatives of the following Commands witnessed Exercise SPLINT:

U.S. Navy	U.S. Army	British Army and Navy
COMNAVEU	SHAEF	ADMIRALTY
TF 122	FUSAG	ANXCF
11thPHIB	FUSA	RAMC
ASSAULT FORCE O	SOS ETOUSA	21AG
ASSAULT FORCE U	CZ	
LANCRAB, 11thPHIB	TUSA	

Following the exercise, several plans for coordinating medical service were adopted by the Force through a critique participated in by senior members of the representatives listed above.

iii. Medical personnel not being available to participate in the foregoing training program were given special briefing prior to their operational assignment in LSTs . This group included 25 U.S. Navy and 100 U.S. Army medical officers.

16.2 ADVANCED BASE MEDICAL PERSONNEL:- Personnel of DREW and other advanced base units were given special courses in field hygiene and sanitation. Medical plans did not include assignment of these units to additional duties in the organized operational chain of casualty evacuation. However, the senior medical officers were briefed in the all-over medical plan and their services' were integrated.

16.3 BEACH BATTALION MEDICAL PERSONNEL:- The 6th and 7th Beach Battalions had had previous training at the Amphibious Training Base, Fort Pierce, Florida, whereas the 2nd Beach Battalion had participated in two amphibious operations. The three beach battalions were given advanced training by being assigned to and participating in excercises with the U.S. Army Far Shore Party Engineers. This was an operational assignment made several months prior to D day in order to integrate the services. Further, joint training exercises were held with the forces afloat.

16.4 MEDICAL PAMPHLETS.

i. "Casualty Handling in Amphibious Operations" was a training pamphlet prepared by medical representatives from TF 122, FUSA and ETOUSA to serve as an instructional guide for Army and Navy Medical personnel. (See Part VI, Appendix D)

ii. "Medical Department Organization and Doctrine for LSTs" and "Medical Materiel in LSTs" were prepared by TF 122 for information and guidance of Army and Navy Medical personnel assigned to LST's. (See Part VI, Appendices E and F.)

iii. Additional circular letters and pamphlets from Army and Navy courses relevant to specific situations were issued.

CHEMICAL WARFARE DEFENSE PROGRAM

17. To provide adequate chemical-warfare defense, a training program for the force was issued by the Task Force Commander on 6 February. In addition, special training was given medical personnel as indicated in "Training", paragraph 16.1 above. Pertinent correspondence relating to chemical-warfare defense is included in Part VI of this report, Appendix G and pages 24 to 31 of Appendix D.

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CASUALTY ESTIMATES

18. In early planning, no uniform basis for estimating casualties in the forthcoming operation was agreed upon by the various planning staffs of the Allied Expeditionary Force. Experience tables of casualties sustained in modern amphibious operations were not available. Disparity in estimates between planning staffs resulted in a conference at Supreme Headquarters, of all officers concerned. Here a uniform basis for estimate was devised and adopted.

19. In the light of these new figures, a careful study of the facilities and logistic support, as planned, indicated that the medical service of the force was adequate. However, subsequent casualty estimates varied from that arrived at in the Medical Estimate of the Situation (Part VI, Appendix A, pages 3 to 5), to such a degree that a "running" estimate was maintained to insure against being under prepared.

20. Initial planning was based on the Medical Estimate of the Situation. The casualty estimates therein given were early figures received from the First U.S. Army. It was realized that these estimates represented the maximal number of casualties that could be anticipated. By using these estimates as a basis for planning, however, unforeseen exigencies would be provided for.

CHAIN OF EVACUATION

21. The chain of evacuation consists of those facilities through and by which casualties are evacuated to the rear - from the front-line aid-men to established hospitals in the zone of interior - from elementary first aid to definitive treatment. In this operation, the front-line was located on the coast of Normandy and the hospitals for definitive treatment were situated initially in England and later in the U.S.A.

22. Maximal benefits from medical services depend upon a continuity of treatment and professional care at all times. To achieve such continuity, all links in the evacuation chain were prepared to integrate their facilities and professional services. The U.S. Navy initially, and later in combination with the U.S. Army Air Evacuation Service, constituted a middle link in the evacuation chain. The First U.S. Army in France represented the distal link and ETOUSA in England, the proximal link.

23. The ground-force medical units attached or assigned to the First U.S. Army were charged with performing the normal functions as prescribed by land warfare, modified during the early stage of the operation by the naval medical personnel in the beach battalions and the available ship medical facilities.

24. The beach battalion medical personnel with the shore party brigades constituted the forward Naval medical elements in the evacuation chain. They were charged initially with supervising seaward casualty evacuation. Later, a Naval Evacuation Control Officer was scheduled to land and supervise seaward casualty evacuation.

25. For the operation, it was planned that LSTs would provide the major casualty lift (facilities for cross-channel casualty evacuation). APA's and British hospital carriers were to supplement LSTs, when available.

26. The responsibility of the Navy for casualties ceased at the port of debarkation in England. Three debarkation ports in Southern England were assigned to the U.S. forces. Portland, Southampton and Brixham. The latter was assigned as a reserve port. The "hards", or loading and unloading points for ramp-type landing craft and vessels, were located in the dock areas of these three ports.

27. Loading and unloading of vessels were performed by the Army under supervision of Navy hardmasters. This included the debarkation of casualties from LSTs by Army companies.

28. Located in the vicinity of each main debarkation port was an Army medical holding unit responsible for holding and treating non-transportable casualties.

CASUALTY RECORDS AND REPORTS

29. In order to obtain a complete record of casualties as quickly as possible, it was necessary to formulate a policy of reporting which was applicable to each element of the force during the several phases of the operation.

30. The Commander, U.S. Naval Forces in Europe, set up a central casualty recording and screening section and became the final addressee for all reports from Naval units of the assault forces. This central section verified reports of casualties through direct contact with the Service Force Personnel Section, near-shore hospitals, graves registration service, etc., and accomplished all reporting to the Secretary of the Navy as directed by Navy Regulations. (See Diagrammatic sketch - Mechanics of accomplishment, Part VI, Appendix H, page 1.)

31. With this basic policy established, it therefore devolved upon the Naval Commander, Western Task Force to determine: (a) The means for keeping the Supreme Commander, Allied Expeditionary Force, Allied Naval Commander, Expeditionary Force, Commander, U.S. Naval Forces in Europe and himself informed of the numerical status of casualties within his force; and (b) the means for furnishing the Commander, U.S. Naval Forces in Europe with the necessary data of individual casualties within his force as expeditiously as possible.

32. The method of accomplishment as outlined in the Medical Plan was formulated and promulgated to the Force. (See Part VI, Appendix I, pages 5 to 10.)

MEDICAL MATERIEL

33. Estimates of medical materiel requirements to support the operation were based on the decisions reached in the Medical Estimate of the Situation. It was anticipated that seaward casualty evacuation would constitute the principle task of the Force; that LSTs would provide the major facilities available for evacuation and hospitalization afloat; that APA's and British hospital carriers would supplement LSTs when available; and that the major supply problem would be the medical materiel readiness of LSTs . The manner of effecting this medical materiel readiness is hereinafter described.

34. TASK FORCE MEDICAL SUPPLY OFFICER:- To effect specialization of effort in dealing with matters relating to medical materiel, a Hospital Corps officer from the staff of the force medical officer was assigned the duties of task force medical supply officer.

34.1 Preoperational duties: (a) Cognizance of medical logistic plans, stocks, methods of procurement, storage, transportation, allowances, etc.; (b) liaison between TF 122, ComNavEu, Service Force and U.S. Army medical supply officers; (c) dissemination of information, regarding medical supplies, to medical personnel of casualty evacuation ships and beach battalions; (d) coordination of Naval medical supply functions with those of the Army; and (e) responsibility for having the initial outfit of supplies at advanced supply points and on board each LST prior to D day.

34.2 Operational duties: (a) Supervision of near-shore resupply points; and (b) maintenance of sufficient materiel in supply lines.

34.3 The Army designated an officer with similar duties, coordinating his activities with the Naval task force officer.

35. FOR LSTs .

35.1 Estimate of Requirements:

i. An agreement between the Army and Navy was reached, as to the extent and character of treatment to be administered casualties while they were being evacuated by the Navy from France to England.

ii. Professional branches, i.e., medical, surgical, NP, EENT, chemical warfare, etc., of both services studied and made recommendations as to the necessary materiel. Detailed study was made of the following: (a) Authorized commissioning allowances for all LSTs (Part VI, Appendix J, Column 1.) and (b) special supplies authorized by CominCh provided to each of the 83 casualty-converted LSTs as noted below:

ITEM	NO. PER LST
Litter, metal pole.	300
*Special Unit A, emergency surgical dressing.	16
*Special Unit B, pouch, medical officer, individual equipment.	4
*Special Unit C, pouch hospital corpsman, individual equipment.	40
*Medical resupply unit for beach battalion (beach bag).	16
Bunk strap	400

(*NOTE: See Part VI, Appendix J, pages 12 and 13, for itemized contents of special Units A-B-C and beach bag)

iii. Recommendations for items not available in either of these sources, but deemed necessary, were included in the estimates later submitted for procurement.

iv. Medical materiel allowances per ship and resulting estimates of total medical materiel required for the operation were based on information contained in the Medical Estimate of the Situation (See Part VI, Appendix A, pages 9, 10 and 11).

v. Completed estimates for three phases of the operation were submitted to ComNavEu, i.e., (a) D to D plus 10 days, (b) D plus 11 to D plus 30 days, and (c) materiel required to reoutfit certain LSTs for a planned flanking amphibious assault. These estimates were based on the actual operational requirements of 100 LSTs and made no allowance for reserve materiel, i. e., dispersion, loss by fire or enemy action such as bombing of storage points etc. Provision of reserve materiel to cover such exigencies was an accepted responsibility of ComNavEu.

vi. An estimate of the quantity of materiel necessary to bring the stock in LSTs arriving in the theater up to commissioning-allowance level was furnished ComNavEu. LSTs were directed to submit requisitions to accomplish this at the earliest possible date. Thus, planning of resupply requirements was based on a uniform stock level in all LSTs .

35.2 Availability of Medical Materiel.

i. Adjustments of ship's operational-allowances were made as necessitated by the availability of materiel.

ii. When it was decided to use all LSTs in operational casualty evacuation instead of only those especially converted, a redistribution was made of the special supplies previously described in paragraph 35.1, ii. Issues to cover shortages were made by U.S. Naval Medical Storehouse No. 12, in Exeter, England. Thus, all (103) LSTs had the same amount of this special materiel aboard at the beginning of the assault.

iii. Items authorized by ComNavEu as temporary additions to commissioning allance were issued by special requisition.

iv. See Part VI, Appendix J, columns 2, 3, and 4 for an itemized list of medical materiel furnished LSTs .

36. FOR ASSAULT TRANSPORTS.

36.1 Estimate of Requirements.

i. ComNavEu was advised of the probable resupply requirements to bring the stock levels of APA's and AKA's up to the allowances authorized by BuMed in November 1943.

36.2 Availibility of Medical Materiel.

i. A directive was sent each transport concerned to "top-off" prior to departing for the ETO.

ii. Upon arrival, the needs of each transport were nominal and easily supplied by Storehouse No. 12.

37. FOR SMALL CRAFT:

37.1 LCI - LCT.

i. ComNavEu was advised of the probable total resupply requirements of these crafts, based on currently authorized allowance lists.

ii. Materiel required to bring small craft up to allowance for the operation was distributed to the various bases in proportion to the number of craft attached.

iii. Issuance of supplies to craft was accomplished upon letter request to medical activities of the various bases.

iv. Since it was planned that crews of small craft were to subsist on tinned rations from D to D plus 30 days, multiple vitamins were distributed to group commanders to augment the diet after D plus 15.

37.2 LCVP - LCM.

i. Parent vessels were directed to equip each of their landing craft with first-aid materiel in an amount approximating the list shown in "Medical Service, Transport, Amphibious Force, Atlantic Fleet". This was in addition to the standard abandon-ship boat-box in each craft.

ii. To afford an early source of essential medical materiel to the shore elements on the assault beach, each LCVP was implemented with two self-contained litter-units consisting of the following items:

1 Litter, pole, Army type.
1 Field blanket.
4 Battle dressings, large.
4 Pieces of basswood splint material.

37.3 SEA RESCUE CRAFT.

i. Each craft was issued 15 blankets and 1 tin of combat dressings as supplemental materiel.

38. OTHER VESSELS:-Medical supplies were obtained by normal requisitioning procedure.

39. BEACH BATTALIONS.

39.1 It was known that three beach battalions would participate in the initial assault. It was not known how many of these would be employed in the proposed additional amphibious flanking assault. To be fully prepared, three beach battalion outfits, complete, were included in the estimates. The shipment of this materiel, when received in the ETO, contained outfits for only three platoons. Adjustment was made by air and sea shipments.

39.2 One battalion, because of participation in previous operations, required considerable replenishment of materiel to complete its outfit. This was issued prior to D day.

39.3 To facilitate early assault materiel replenishment of Naval beach medical units, each LST was furnished 4 beach bags in excess of ship's allowance. They were directed to keep these and 20 of the litter-units described in para. 37.2, ii, above, in an accessible location (topside) for issue to the beach on signal.

40. SPECIAL MATERIEL.

40.1 Whole Blood:-The Army supplied each LST with 10 pints of whole blood as the initial issue and maintained a blood bank for resupply at each of the three casualty debarkation ports. The Army accepted this responsibility, utilizing their supply of donors among Army personnel in England.

40.2 Penicillin:-In early planning, it was mutually agreed that the need for penicillin on LST's would not be manifest during the operation. Later, it was decided that it would be desirable to have penicillin. When this decision was made, time did not permit delivery from the U.S. and the Army, having considerable stock on hand, agreed to provide an initial issue of 6 ampules to each LST as well as an adequate resupply.

40.3 High Test Hypochlorite (HTH):-High test hypochlorite, for water purification, was made available to all vessels through the Naval Supply Base, Exeter.

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40.4 Life Jackets:- All LSTs were supplied with an adequate number of life jackets to provide for the anticipated casualty load.

41. U.S. ARMY MEDICAL MATERIEL (EXCHANGE UNITS).

41.1 In early planning, the Navy assumed the initiative in procuring items deemed necessary for operational property exchange based on previous operating procedure experiences, i.e., blankets, litters, etc. Later, it was agreed that, for this operation, automatic property exchange was an Army function and the bulk of the items already received for this purpose was turned over to the Army.

41.2 As stated in "Army - Navy Responsibilities", (Part VI, Appendix K) the Army agreed to furnish and the Navy agreed to transport 300 Army units of supplies (Part VI, Appendix L) to the far-shore and then to assume the usual policy of item for item property exchange.

42. U.S. NAVAL MEDICAL REPRESENTATIVE AT CASUALTY DEBARKATION PORTS.

42.1 To insure efficient administration of Naval medical service at the three main casualty debarkation ports in England, a Hospital Corps officer (Pharmacist) was detailed to each as the Naval Medical Representative. His duties were threefold in that he was concerned with: (1) casualty reception and reports; (2) resupplying casualty-evacuating vessels with medical supplies, and (3) liaison with the Army medical unit functioning at the port. Each officer had a staff of from 3 to 5 hospital corpsmen assistants.

42.2 Each officer was thoroughly indoctrinated as follows: (a) By being informed of all phases of the medical supply plan; (b) by being ordered to his respective port sufficiently in advance of D day to orient himself in the local Navy and Army organizations and port facilities; (c) by participating in the delivery of initial supplies from the central storehouse to the port; and (d) by being required to file a written report of his plan of procedure for reference in case he became a casualty.

42.3 As the Naval medical representative, each of these officers assumed the following duties: (a) Acted as advisor on all matters pertaining to Naval medical service; (b) immediately advised the Service Force Medical Officer of untoward incidents occurring which were beyond his capacity to correct; (c) supervised conjointly with the Army representative the maintenance of adequate stocks of medical materiel in local supply dumps; (d) boarded all LSTs arriving in the port, collected and forwarded casualty reports, filled requisitions for supplies and delivered such new orders or instructions as issued by the Service Force Medical Officer; and (e) maintained a running log of events, i.e., vessels serviced, numbers and types of casualties evacuated, supplies issued, etc.

43. MECHANICS OF MEDICAL RESUPPLY SYSTEM.

43.1 The Task Force prepared estimates of its operational needs and submitted them to ComNavEu for procurement. ComNavEu made the materiel available through one main medical storehouse at Exeter, England.

43.2 Accomplishment of supplying medical materiel to LSTs is portrayed by the diagrammatic chart, orientation map and personnel roster shown in Part VI, Appendix M. All formal requisitions for medical materiel were approved by the Staff Medical Officer, ComNavEu before issue to task force units was made by Medical Storehouse No. 12.

43.3 The Army organized and affected an efficient transportation system throughout Southern England and by mutual agreement, Naval medical supplies were transported to the LST ports via this network. Further, the Army maintained a series of materiel storage points, through which Naval medical supplies flowed, leading to each of the three ports. (See Part VI, Appendix M, pages 2 and 3.)

43.4 Air-raid and surface-bombardment precautions dictated dispersal of units comprising the chain of supply. Naval medical materiel was handled as follows: From the central Naval Medical Storehouse (Exeter), materiel to cover the resupply needs of LST's for the first 10 days was shipped by truck to units of the individual port supply-chain between D minus 6 to D minus 4. Approximately 60%, or supplies to cover 6 days issue, of this materiel was initially delivered to the main storage point which was located about 15 miles inland from the port: 30%, or 3 days' supply, was delivered to the intermediate storage point which was located approximately 7 miles from the port; and the remaining 10%, or 1 days' supply, delivered to the

immediate issue point located within one-half mile of the three LST loading docks in each port.

A continuous materiel flow was maintained through these storage points towards the immediate issue point, based on daily materiel issues to LSTs.

THE OPERATIONAL MEDICAL PLAN (See Part VI, Appendix I)

44. The medical plan for this operation was based on the following: (a) Operational Plan; (b) Medical Estimate of the Situation; (c) Joint Agreement with respect to Army - Navy (medical) Responsibilities; and (d) integration with the ground and air force medical plans.

45. Broad policies of medical service were agreed upon by the higher command echelons. Included in these policies was a recognition of the differences in medical services of the American Forces from those of the Allies. This permitted our Force to develop its own plan based on our organization, training and logistic support.

46. The Task Force medical plan was designed to set forth the medical situation, mission and plan of action in sufficient detail to insure coordinated action of all elements of the command. It was as simple and as brief as was consistent with proper dissemination of necessary information. Preoperational training programs and instructional pamphlets obviated the necessity of inclusion of much detail in the final medical plan.

PART III

ASSAULT PHASE

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47. During the early hours of the assault on D day, medical personnel functioned as independent units wherever and whenever they reached the beach, no attempt being made to contact each other. Initially, six medical sections of the 6th Beach Battalion and three medical sections of the 7th Beach Battalion were committed to the OMAHA Beach; six medical sections of the 2nd Beach Battalion were committed to the UTAH Beach. By D plus one day, all remaining medical sections of the beach battalions had landed on their designated beaches.

48. The first Naval medical elements landed at H plus 40 minutes. On OMAHA Beach the military situation was such as to limit medical service to primary first-aid. This situation prevailed until late in D day. The initial casualties on UTAH Beach were relatively light and general organization was more readily established.

49. To clarify medical organization and service, the following is a summary of reports submitted by the Naval Evacuation Control Officer of each beach:

49.1 MEDICAL SERVICE ON OMAHA BEACH: - The medical organizations assigned to OMAHA Beach were: U.S. Navy - Medical Sections of the 6th and 7th Beach Battalions; U.S. Army - 60th and 61st Far-Shore Medical Battalions attached to the 5th and 6th Engineer Special Brigades, plus the Battalion Medical Sections of these Brigades.

During the initial assault on OMAHA Beach, severe enemy action resulted in loss of a large part of the medical supplies being brought to the beach by craft and DUKW's as well as that being hand-carried by medical personnel. On Easy Red sector, a load of medical supplies in a stranded Army truck was advantageously used by medical personnel of the Naval beach battalion operating on that beach. The acute need was for litters.

Initially, only first-aid treatment was given owing to the tactical situation on the beach and the military necessity of keeping the beach cleared of casualties. Casualties were placed in any type of landing craft available and dispatched to APA's and LSTs. No records of casualties evacuated were made at this time. There was a time lag during D day in which casualties were not cleared from the beach for a period of from 4 to 8 hours. Owing to confusion and military demand, small craft were not obtainable for some time. In one instance, the driver of a DUKW loaded with casualties at 2200 on D day experienced difficulty in having the cases accepted by several LSTs. The reasons for refusal were not determined. The casualties were finally placed aboard an LST and the DUKW returned to the beach at 0600 on D plus 1.

The medical sections of the two beach battalions were established on their assigned beaches by D plus 1. Medical supplies, including litters were coming ashore in sufficient quantity to meet the need. Casualties were being evacuated through more established lines, i.e., over definite assigned areas of all beaches. Records were being kept and the chain of evacuation from shore to sea functioned according to S.O.P.

As the beachhead progressed, the Army far-shore medical battalions became established in three areas approximately one-half mile inland from the high-water mark. Casualties were then evacuated through three axes to the beach. The Naval beach battalion established evacuation stations on Sectors Dog Red, Easy Red and Fox Red.

At D plus 4 days the first of five Army C-47 transport planes landed on an improved air strip on Easy White Sector. This was 10 days earlier than air service had been expected to begin and as a result, only twelve casualties were evacuated.

According to plan, casualties were being loaded on any LST as it became available. This resulted in slowing down the unloading and reloading facilities at the debarkation ports in England. ANCXF then issued orders to concentrate casualties in the smallest practicable number of LST's. This was done by designating one LST per tide to beach on Easy White Sector for reception of casualties and to sail on the following tide. The specified LST (by number) was designated by the N.O.I.C. afloat who had cognizance of all available LSTs as well as their arrival and sailing times. This information was communicated either by visual means or by radio to the N.O.I.C. ashore and relayed to the evacuation control officer at approximately 0800 each day.

British hospital carriers were used but some difficulty was experienced in the transfer of casualties. U.S. type litters did not fit well in their Higgins-type ambulance boats. By D plus 10 days, there was little need for hospital carriers as air and LST evacuation proved adequate.

During a storm between D plus 13 and D plus 16 when it was impossible to evacuate casualties by sea, air evacuation was maintained handling approximately 1890 cases.

By D plus 13 days, one axis of casualty evacuation was established. The far-shore medical battalions of the 5th and 6th Engineer Special Brigades set up a clearing-holding station in a direct line with the Easy White sector exit. There, casualties were sorted according to types. Ambulatory cases were held by the holding-unit of the 60th Medical Battalion while the stretcher cases were held by the 61st Medical Battalion. A direct telephone connection was established from the triage area to the Navy beach evacuation station on Easy White Sector. Here the Navy Medical officer on watch could notify the triage, or "evacuation control center", as it was called, when a casualty-converted LST became available. Also, this telephone line was connected to the air strip and notification was given from here relative to the arrival of air transports. This system was easily regulated and maintained, and greatly facilitated speed and ease in handling casualties to be evacuated as well as maintenance of records.

The main means of evacuation by D plus 17 was by air. As long as air facilities were available all cases, with priority being given to stretcher cases, were evacuated this way. Sea evacuation was held in a stand-by status but was being used mainly for ambulatory cases.

The general concept of casualty evacuation as established prior to the operation was carried out essentially as planned. Except in one instance there was no accumulation of casualties on the beach over that which could be adequately handled. The only time that casualties were not immediately cleared from the beach area was during D day when small craft had difficulty in landing. As a result of this difficulty, some casualties were retained on the beach for a period of from 4 to 8 hours. The changing normal back-drift of casualties and axis of casualty flow was met by the elasticity and mobility of evacuation station organization. The cooperation between the U.S. Army and U.S. Navy medical units was of the highest.

The assault phase was considered over by D plus 17 days. By this time the casualty-evacuation system had become well regulated. The medical personnel attached to the far-shore-party organization gradually took over the routine of dispatching the casualties. The Navy beach battalion medical sections were returned to bases in England by D plus 24 days.

During the period covered by this report the percentage of casualties among medical sections only, was as follows: 6th Beach Battalion medical sections 27% casualties (2 medical officers and 20 hospital corpsmen); 7th Beach Battalion medical sections, 13% casualties (1 medical officer and 10 hospital corpsmen).

49.2 MEDICAL SERVICE ON UTAH BEACH: - The medical organizations assigned to UTAH Beach were: U.S. Navy - Medical sections of the 2nd Beach Battalion; U.S. Army - 261st Medical Battalion of the 1st Engineers Special Brigade plus the battalion medical sections of this Brigade.

Six of the nine platoons of the 2nd Beach Battalion landed with the assault waves at about H plus 1 hour. By H plus 2 hours all Naval medical elements had landed and were functioning on the beach. All the assault forces, during the early hours of D day, were harassed by enemy machine gun and artillery fire (88 mm.). During the initial phase of the assault, only life-saving, first-aid medical attention could be provided and this was, for the most part, handled by the Naval medical sections operating on the beach.

The 261st Medical Battalion landed about H plus 4 hours. This battalion, although hampered by loss of medical materiel, was able to provide definitive care to casualties occurring on the beachhead at about H plus 6 hours.

The Naval medical section of the 2nd Beach Battalion consisted of 9 medical officers and 72 hospital corpsmen. Of these, personnel casualties were relatively light. Two hospital corpsmen were killed, 3 or 4 were wounded and evacuated and several other sustained minor wounds which required neither evacuation nor relief from duty. Casualties amongst 2nd Beach Battalion personnel as a whole consisted of 1 officer and 7 men killed and 12 men evacuated because of wounds.

Naval medical personnel were organized and directed by the senior medical officer of the 2nd Beach Battalion. Personnel distribution and employment, after the initial assault phase were as follows:

The senior medical officer acted in the capacity of general supervisor.
Two medical officers were assigned to company A and one each to companies B and C of the 261st Medical Battalion as Navy liaison officers.

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Two medical officers established and operated first aid stations about 1000 yards apart on the beach proper.
Two medical officers acted as evacuation officers on the beach proper. Hospital corpsmen were allocated to the several medical officers in numbers commensurate with individual requirements.

A goodly amount of medical materiel was lost by reason of enemy action during the assault phase. However, a sufficiency of medical supplies was available to carry out the functions of the Naval medical sections by reason of beach bags (medical resupply unit) being available during this critical period. Other medical supplies and equipment brought in during later hours and days provided generous amounts of materiel for setting up and operating first aid stations. Surplus materiel was pooled with the 261st Medical Battalion and later needs met directly from that organization. Except during the confusion of the first few hours of the assault, no particular shortage of medical materiel occurred. The 1/4 ton trucks (jeeps) provided to each of the 9 medical officers of the 2nd Beach Battalion proved invaluable. Two were lost due to enemy action. It was clearly evident that medical officers conducting evacuation on the beach had to have means of rapid and ready transportation. The jeep fulfilled all requirements and it is strongly recommended that it be continued as an item of supply for each platoon medical officer. The hand radio set (model M536) provided a means of maintaining direct contact with the several widely dispersed beach medical activities. Signals were sent out from the beach proper every quarter hour, thus permitting necessary contacts and at the same time conserving battery energy. Clearing companies were located about 500 yards inland from the beach but by use of the hand radio sets, medical elements were able to maintain close and efficient contact with each other.

In the early hours of D day, all possible means of transporting casualties from the beach to ships at sea were employed - DUKW's, LCVP's and LCT's. For the most part, casualties were dispatched to casualty-converted LSTs. In the later days, evacuation becoming better organized, casualty handling was methodically carried out in the following manner:

By LSTs:- The most satisfactory means of evacuating large numbers of casualties was by loading them on beached LSTs. Casualties were transferred from the clearing companies by means of jeeps fitted to carry litters. Thus, a ship could be loaded with about 200 casualties per hour.

By LSTs:- Casualties were loaded in beached LSTs which in turn conveyed them to hospital carriers and other ships anchored at sea. This method was valuable in the early hours when the military situation did not allow LSTs to beach. At times, it was necessary to transfer casualties from DUKW's to LCT's while afloat.

By Hospital Carriers:- These ships, while providing excellent medical facilities and having the virtue of speed, were not entirely satisfactory for several reasons: The ships had to anchor somewhat distant from the shore, necessitating additional handling by small craft of DUKW's of all patients transferred to them from the beach. Differences in equipment and handling technic caused slow loading.

The Navy organization for evacuating casualties from UTAH Beach was well organized and directed by the senior medical officer of the 2nd Beach Battalion. The program functioned smoothly and according to plan. The beach evacuation organization had ample personnel and materiel to carry out their function. After D plus 4 days, it was evident that there was a redundancy of personnel, yet through the efforts and close supervision of the senior battalion medical officer, a minimum of divided responsibility resulted.

On D plus 29 days, the 2nd Beach Battalion was relieved of the duties of casualty evacuation. In anticipation of this action, the medical officer on the staff of FOWEST had provided a medical officer for the staff of N.O.I.C. UTAH to carry out evacuation. The organization was well set up and functioning and the medical officer attached to N.O.I.C. encountered few difficulties when he assumed his duties.

FAR-SHORE MEDICAL MATERIEL

50. While each service provided its own basic materiel, as well as items of resupply, operational plans provided that far-shore medical activities would be supplied emergency materiel from stocks maintained in vessels of the naval force, mainly from LSTs.

51. During the initial assault, some beach battalion supplies as well as a number of the Army exchange units were lost as a result of enemy action. The beach bags (medical resupply unit) provided a source of medical materiel sufficient to breach the gap caused by such losses until Army medical resupply dumps were established ashore.

52. While no critical overall deficiencies occurred, sporadic localized shortages did exist or become imminent. Early in the assault, many LSTs had to anchor off the beach and difficulty was experienced in getting the Army unloading details to accept the exchange units as a part of the cargo to be unloaded. This was primarily due to the fact that the units were not listed on the Army load-manifest as they did not belong to any specific organization, but rather were on board LSTs for trans-channel shipment. Later, when LSTs beached, this difficulty was not encountered.

53. Among the items furnished shore medical elements by vessels of the naval force were: Litters, blankets, whole blood, plasma and beach bags.

AFLOAT

54. Staff medical officers in key command echelons of the forces afloat were located as follows:

Western Naval Task Force Medical Officer	- in U.S.S. AUGUSTA
Assault Force "O" Medical Officer	- in U.S.S. ANCON
Assault Force "U" Medical Officer	- in U.S.S. BAYFIELD
Traffic Control Medical Officer	- in SHUTTLE CONTROL HEADQUARTERS SHIP.

55. The U.S.S. AUGUSTA, flagship of the Naval Commander, Western Task Force, with the Staff aboard arrived off the Normandy coast for the initial bombardment and subsequent naval gunfire support. The Force Medical Officer remained in this immediate action area for the following 22 days. During the approach to the Normandy coast, very few personnel casualties occurred in the assault force. Those which did occur were mainly among air-force and air-borne troop personnel. Sea rescue work was efficiently effected by Coast Guard manned sea rescue craft assigned to the task.

56. Loss of vessels resulting from enemy action during the assault was much less than anticipated. Nevertheless, between mines, "E boat" activity at sea and enemy action near the shore, ship casualties did occur. While not strictly a medical problem, all survivors were initially considered to be casualties and were handled as such until triage was completed. Evacuation to England and such medical care as was found necessary was accomplished mainly in LSTs, APA's and HC's.

57. The fundamental task of medical service afloat was that of trans-channel casualty evacuation to England. On D day, there were 103 LSTs in the WNTF. Of these, 54 were casualty-converted with structural conveniences for casualty handling. The remaining 49 were implemented only with additional medical personnel and supplies. This preoperational concept of providing all LSTs the means to receive casualties proved invaluable during the initial period of the assault. As evacuation became organized, only designated LSTs were assigned the evacuation task. This was found expedient as it permitted LSTs not carrying casualties to speed up their turn-around time at both near and far-shores.

58. At about H plus 2 hours the first casualties from the beaches were received afloat. At H plus 6 to 8 hours, seaward evacuation had become fairly well organized. In the UTAH area, early beaching of LSTs greatly facilitated evacuation. In the OMAHA area, beach obstacles plus greater enemy resistance delayed evacuation but not sufficiently to interfere with the assault. While having no specific role in casualty evacuation, the U.S.S. BAYFIELD and U.S.S. ACHENAR did render invaluable assistance during the early assault by receiving and caring for large numbers of casualties and later transferring them to LSTs and hospital carriers as the latter became available.

59. Of the five British hospital carriers assigned to the WNTF, one was damaged by a mine while on its initial trip to the assault beach. The remaining four carried out the plan which was that one carrier should be available at each assault beach daily from D plus 1 on.

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NEAR-SHORE CASUALTY HANDLING

60. The near-shore medical facilities functioned most satisfactorily. A few casualties began to arrive in Portland on D day whereas the first to arrive in Southampton were on D plus 2. D plus 3 and 4 were the heaviest days for both ports. (For a tabulation of casualties received, see Part VI, Appendix N, page 8.) These cases represented the casualties from the initial assault. Action reports show that many received only first-aid care on the far-shore. However, the medical facilities afloat proved adequate to effect further treatment as the condition of the casualties on arrival in England was excellent. Life-saving surgery was resorted to whenever necessary. Some of these cases were included with the non-transportables which were cared for at the holding-units.

61. Naval casualties were shunted to Naval Base Hospital No. 12 whenever possible. In addition, many of the injured merchant marine crews as well as casualties of the armed forces of our allies were sent there. The care and medical service given by the staff of this hospital was a credit to the Navy.

62. The Army chain of evacuation and hospitalization in England exemplified outstanding medical efficiency in planning and operation. Great credit is due General Paul Hawley, Chief Surgeon, ETOUSA and his organization for this accomplishment. The smoothness and efficacious handling and care of casualties throughout by the Army medical service should be recorded for historical reference.

NEAR-SHORE CASUALTY RECORDS AND REPORTS

63. While casualty reporting as a whole functioned normally, the outstanding accomplishment in the reporting system of the organized casualty evacuation chain was the service rendered by the "Running Record of Battle Casualties" (RRBC) (For details see Part VI, Appendix H, page 2.) By its utilization the central recording section received names of casualties within a matter of hours after the casualties debarked at near-shore ports. As may be seen in the diagrammatic sketch, Part VI, Appendix H, page 1, the entire reporting system was closely knit together; all information concentrating at one point for final reporting to the Navy Department.

64. As a matter of interest, by July 5 (D plus 29 days) 23,377 casualties had been reported to the Service Force casualty record section. Of this number, through the medium of 238 "Running Records of Battle Casualties" received, 22,455 casualties were known to have been debarked in England, and the central casualty recording section thus had individual data required for final reporting to the U.S. on each. A break-down of these 23,377 casualties is as follows:

Casualties	Number of Casualties Recorded		Total Casualties Recorded
	By RRBC	By other Reports	
U.S. Navy	1,203	875	2,078
U.S. Coast Guard	34	42	76
U.S. Army	17,242	5	17,247
Allies	1,298		1,298
P.O.W.	2,678		2,678
TOTAL	22,455	922	23,377

NEAR-SHORE MEDICAL MATERIEL

65. Generally speaking, little difficulty was encountered by the supply system in meeting the demands of the assault phase of the operation. Materiel on hand, based on task force estimates, proved adequate. Use of reserve materiel was not required since no loss was sustained on the near-shore by reason of enemy action, nor were the losses incurred in the assault area as great as had been anticipated. The commencement of casualty evacuation by air from the assault area 10 days ahead of schedule also helped to reduce the amount of medical materiel required by ground and naval force elements concerned with evacuation.

66. It was the rule, rather than the exception, that LSTs requiring replenishment of supplies, received the materiel on board in less than 30 minutes after dropping the ramp at the port loading point.

67. A need for a few supply items not provided for in the planned resupply list developed as the assault progressed. Direct shipment by special truck from Exeter or from Army supply depots to the port issue point was made in these instances.

68. After the assault phase (about D plus 30 days) 24 LSTs were withdrawn from the operation and outfitted for another assault (Mediterranean Theater).

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PART IV

COMMENTS, CONCLUSIONS, AND RECOMMENDATIONS

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NEAR SHORE	77.
General	77.1
Medical Materiel	77.2

69. Information sources: The basis used in writing this section of the report is a compilation of information from the following sources:

i. Written action reports from 85 Navy and 89 Army medical officers who served in LSTs during the operation.

ii. Action reports, verbal and written, from approximately 20 of the 27 beach battalion medical officers.

iii. Action reports from Assault Forces "O" and "U".

iv. Report from Staff Medical Officer, ComNavEu.

v. Personal observations.

vi. Conference with medical officers of the U.S. and its Allies who were directly concerned with the operation.

70. LST's

70.1 MEDICAL PERSONNEL

i. Comments: - (a) Naval medical personnel were operationally assigned to LSTs in late April and early May as they became available in the theater.

(b) Army medical personnel began to arrive aboard on May 25 and were generally detached about 26 June 1944, thus averaging from 25 to 30 days on board, during which they participated in an average of 3.8 round trips and carried patients on 2.2 trips.

(c) In regard to the adequacy of the distribution of medical personnel to LSTs for the operation, 84.8% of the medical officers that submitted action reports (information source i of paragraph 69) considered the number to be "adequate", 1.8% "excessive" and 13.4% "inadequate"

(d) The majority of Naval medical personnel assigned to LSTs had had no previous training in amphibious medical service when they arrived in the theater.

ii. Conclusions: - (a) Medical personnel (number) was adequate.

(b) The preliminary training and indoctrination of medical personnel proved most valuable.

iii. Recommendations: - (a) That the minimal medical personnel requirements, based on an average casualty load of 150 casualties per LST for 36 hours be:

(1) Early assault phase -
2 Medical officers, one of whom is a surgeon.
20 Hospital corpsmen, including at least two surgical technicians.

The above should be reinforced by surgical teams when LSTs are used to furnish local medical support.

(2) Later - if employed primarily as ambulance ships--
1 Medical officer.
10 Hospital corpsmen.

70.2 MEDICAL MATERIEL

i. Comments: - (a) Comments from information source i., of paragraph 69; operational distribution of materiel was considered. Adequate - 86.0%; Excessive - 12.6%; and Inadequate - 0.6%.

It is interesting to note that most of the medical officers reporting medical materiel to be excessive were those on LSTs that evacuated very few or no casualties.

(b) The commissioning allowance of medical materiel for LSTs is based on the normal requirements of medical service provided to the ship's complement of personnel. This allowance is neither adequate nor intended for medical service to the great number of casualties that might be cared for on this type vessel during an amphibious operation.

(c) In retrospect, the concept of providing LSTs with a uniform basic allowance of medical supplies and equipment supplemental to the ship's commissioning allowance for the Normandy operation proved sound. Initial outfitting and resupply problems such as transporting, storing, issuing and requisitioning were materially reduced. However, a detailed review of comments contained in information source i. of paragraph 69, indicates the need for basic modifications as follows:

(1) Revise contents of present Unit "A". Increase the variety and quantities of items. Pack in an expendable waterproofed box or carton to facilitate handling and storage. Package should be secured with a steel strap or wire to discourage the curious. Assign a new name which would indicate it to be a LST Casualty Treatment Unit.

(2) Revise the present medical officer's emergency surgical outfit (Stock No. 3-545) as follows:

Pack in two cases to facilitate resupply of expended materiel. Case No. 1 to be a suitable chest or suitcase and Case No. 2 to be an expendable carton or box.

CASE NO. 1

A rugged and simple oxygen-therapy apparatus, multiple-out-let type.
A modified Wangansteen-type suction and drainage apparatus.
Plaster shears.
Tracheotomy tubes.
Amputation knife.
Sponge forceps.
Aspirator and injection outfit.
Cartridge-type syringes.
Battery-operated headlamps.
Practical reference books on battle surgery.

CASE NO. 2

Rubberized cloth capable of withstanding repeated sterilization by boiling.
Prepackaged sterile sponges.
Levin tubes.
Atropine hypodermic tablets.
Medications for intravenous use.

(3) Adopt a wider plaster of paris bandage. (The present 3" width proved unsatisfactory for large casts. The manufacture of plaster of paris bandage aboard the LST is not practical. The Army provided, on some LSTs, a 6" width that proved most satisfactory.)

(4) Adopt a prepackaged sterile burn dressing.

(5) Adopt ophthalmic discs as an item of medical supplies for LST's as well as for the Field Medical Unit No. 10.

(6) Adopt a standardized uniform type of "Running Record of Battle Casualties" for all LSTs concerned with casualty handling in amphibious operations.

(d) The use of a motion-sickness preventive was not deemed necessary in the trans-channel crossing for Naval personnel. However, it was distributed by the Army to the assault troops.

ii. Conclusions: - (a) Medical materiel (amounts) was adequate.

(b) The basic principles of medical supply and resupply for this operation were sound, but a revision of the details of accomplishment is necessary for planning future operations.

iii. Recommendations: - (a) It is recommended that there be standardization of a uniform basic allowance of medical supplies and equipment, supplemental to ship's commissioning allowance, for LSTs which are operationally assigned the additional function of casualty handling.

(1) Proposed method of accomplishing the above recommendation: The basic allowance is envisioned as being composed of definite combinations of materiel, a portion of which should be especially designed and designated "units", much the same as the present Field Medical Units, to facilitate resupply. These units should be appropriately named in incorporated in the Medical Department Supply Catalog. Initial allowance issues should be made to all LSTs prior to their departure from the U.S. and subsequent issues as directed by operational theater commanders. At resupply points in operational theaters, units as well as individual items comprising the units should be available for issue as the situation demands. (It is intended that this basic allowance be augmented by miscellaneous items as dictated by the theater of operations.)

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Itemized listings of proposed allowance and units are shown in Part VI, Appendix O as follows:

BASIC OPERATIONAL MEDICAL MATERIEL ALLOWANCE, COMPLETE, FOR LSTs . . . . . page 1
UNIT A - Case, casualty treatment, special, complete, for LST:
(Materiel to treat 25 battle casualties.) . . . . . page 2
UNIT B - Pouch, individual, medical officer, special, complete.
(For use by medical officers in casualty handling, LSTs.) . . . . . page 3
UNIT C - Pouch, individual, hospital corpsmen, special, complete.
(For use by hospital corpsmen in casualty handling, LSTs.) . . . . . page 3
OUTFIT, Emergency, surgical, special, complete. (For
medical officers in casualty handling, LSTs.) . . . . . page 4

(b) Special materiel: (1) Whole blood, penicillin, biologicals, etc., for operational use should be issued to LSTs within the theater of operations.

(2) Recommendation should be made to BuShips relative to increasing the LST ship's allowance of kapok life jackets for casualties being transported, bleaching powder for water purification and emergency portable toilets for ship's sanitation.

70.3 STRUCTURAL CHARACTERISTICS

i. Comments: - (a) Toilet facilities were inadequate on the tank deck.

(b) Structural factors made transporting of litter cases into troop and other spaces difficult.

(c) The top tier of stretcher racks on LSTs converted into casualty carriers was inaccessible owing to its height from deck.

(d) The platform at the after end of the tank deck was located directly below the forced draft ventilators which created undesirable air movement and precipitation of moisture in the surgery area.

ii. Conclusion: - Structural changes provided in the casualty-converted LSTs represented a distinct advance in design for facilitating the handling of casualties.

iii. Recommendations : - (a) All LSTs should be converted for casualty handling.

(b) Future alterations should include openings from the tank deck into the troop spaces.

(c) Improvement should be made in sanitary facilities.

(d) Better access should be provided for the handling of litter cases.

(e) The receiving ward, wash room and operating room should be located in the troop spaces with ingress and egress provided the tank deck.

(f) Demountable ladders should be provided to the escape hatches.

(g) Permanent stowage space should be allocated in each ship for such supplemental medical materiel as may be authorized.

70.4 ORGANIZED CASUALTY EVACUATION (Note: An analysis of casualties evacuated during the first eleven days of the operation is shown in Part VI, Appendix N, pages 5 to 9.)

i. Comments: - (a) Compilation of casualty figures received from 83 LSTs for first three round trips:

NO. OF CASUALTIES EVACUATED FROM FRANCE BY LST			METHOD OF LOADING				
			LST AFLOAT				LST beached or dried out
Ambulatory	Stretcher	Total	Over Ramp	Hoisted by Sling	Hoisted in boats to deck level	Total	Over Ramp
4,480 (32.5%)	9,293 (67.5%)	13,773	5,682 (55.7%)	3,484 (34.1%)	1,031 (10.2%)	10,197	3,576
			74%				26%

(b) Individual medical officers strongly criticized the unequal distribution of casualties for evacuation made among all LSTs during the operation. In this they were justified in that each was enthusiastic to participate in his profession. However, military decision by

higher authority caused concentration of casualties in designated LSTs to free the greatest number possible for services other than casualty evacuation. (See paragraph 49.1 - Medical Service on Omaha Beach.)

ii. Conclusions: - (a) A review of the Medical Estimate, which was made in the early planning phase, indicated that it contributed much to a successful medical service in LSTs.

(b) The LST provided an excellent means of seaward casualty evacuation during the period and under the conditions set forth in this report.

(c) Loading of casualties into LSTs was best accomplished over the ramp when the ship was beached or dried out.

(d) The other methods of loading casualties were of practical value in meeting the variable situations.

71. HOSPITAL CARRIERS (British Type)

i. Comments: - (a) Attached ambulance boats were not adapted to carrying our standard pole litters and were difficult to load.

(b) These vessels had no casualty-handling equipment other than that which was required to hoist their own special ambulance boats for unloading casualties.

(c) Medical personnel in these vessels had no special training for the task.

(d) In the operation their movements were controlled by the British Ministry of War Transportation, a fact which led to much confusion and materially interfered with efficient employment.

(e) In spite of the difficulties listed above, between D day and D plus eleven, these vessels completed six trips, evacuating approximately 2,272 casualties.

ii. Conclusions: - (a) Hospital carriers were generally unsatisfactory.

(b) The use of these vessels did free a portion of the LSTs involved from casualty evacuation thus speeding up their assault task turn-around time.

iii. Recommendations: - (a) If these vessels are to be employed in future operations, they should be under the operational control of the Task Force.

(b) The assigned personnel should be trained and indoctrinated for the task, casualty handling equipment should be provided and the ambulance boats refitted to handle standard U.S. stretchers.

72. APA's and AKA's

i. Comments: - (a) Medical personnel and materiel were more than adequate.

(b) These ships played only a minor part in the handling of casualties with the exception of the USS BAYFIELD and the USS ACHENAR.

(c) Only 560 casualties were evacuated by these vessels from France to England.

73. LCI(L)'s

i. Comments: - (a) Not utilized for organized casualty evacuation.

(b) The hospital corpsmen, on those vessels which survived enemy action, did a most creditable job of handling the casualties that came under their care.

74. SEA RESCUE CRAFT

i. Comment: - These crews carried out their mission in a very creditable manner.

75. NAVY AIR EVACUATION

i. Comment: - Not employed.

MEDICAL SERVICE ASHORE

76. FAR SHORE

76.1 GENERAL

i. Comments: - (a) The task force medical officer made inspections of the combat beaches early in the assault phase and also attended "on the scene" conferences with: Maj. Gen. A.W. Kenner, (MC), U.S.A., Chief Surgeon, Supreme Allied Command; Maj. Gen. P.R. Hawley, (MC), U.S.A., Chief Surgeon, ETOUSA; Col. J. Rogers, (MC), U.S.A., Chief Surgeon, First U.S. Army; the Chief

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Surgeon, Provisional Shore Party Group; the ground, air and Naval casualty-evacuation control officers; and the senior medical officers of the beach battalions.

(b) Mobility was limited and casualty evacuation was hampered in those Naval beach medical units having no designated means of transportation assigned.

ii. Conclusions: - (a) It is believed that the inspections and conferences were in large part responsible for closer cooperation and better understanding of the immediate medical problems and that the efficiency of the joint Army-Navy medical service in the vicinity of the combat beaches was thus enhanced.

(b) The utilization of a Naval Evacuation Control Officer on each beach contributed immeasurably to efficient casualty evacuation.

iii. Recommendations: - (a) That one jeep per beach platoon and two DUKW's per beach company be assigned for exclusive medical use.

(b) That amphibious medical service doctrine and S.O.P. include the services of a Naval Evacuation Control Officer as herein described.

76.2 PERSONNEL (ORGANIZATION)

i. Comments: - (a) The performance of the Naval medical personnel in beach battalions was excellent. However, the Army medical facilities, when once established, took over practically all functions in the beach area on about D plus 8 days. Additional services were rendered by Naval personnel during and immediately after a storm which occurred between D plus 13 and D plus 16.

(b) Medical sections of beach battalions for this operation were made up of especially designated naval personnel, not from APA complements.

(c) Additional beach battalion personnel had been requested for replacement purposes - none were provided.

(d) The high casualty rate among medical personnel of the beach battalions on Omaha Beach indicates that planning for these reserves was sound.

(e) Had these beach battalion medical sections been manned by personnel from APA's, and had APA's played their usual role in casualty evacuation, this loss of personnel would have seriously hampered efficient medical service in APA's while they were evacuating casualties.

ii. Conclusions: - (a) Although the service and performance of the beach medical personnel was exemplary, it is believed that no task was performed by these units that could not have been equally well performed by trained landing-force personnel so assigned. Such assignment would conserve medical personnel by virtue of "phasing in" the usual medical organizations existing in the landing force.

iii. Recommendations: - (a) The present doctrine, as related to the employment of beach party medical personnel should be reviewed to: (1) establish unity of control, (2) eliminate duplicity of function, and (3) promote the general efficiency of medical service on the assault beaches.

(b) The landing force should assume full responsibility for all medical duties landward of the high water mark including the actual loading of casualties into boats and other craft in seaward evacuation.

76.3 MEDICAL MATERIEL

i. Comments: - (a) Loss of supplies in the early assault phase was compensated for mainly by the provision of critical materiel in Beach Bags and, to a lesser degree, by the litter units in landing craft, through emergency issues made by LSTs and from salvaged materiel.

ii. Conclusions: - (a) In spite of unavoidable losses, the supplies provided proved adequate for the task.

iii. Recommendations: - (a) Retain the Beach Bag (Stock No. S13-468) as the means of effecting emergency resupply to beach medical units during the assault phase of amphibious operations.

77. NEAR SHORE

77.1 GENERAL

i. Comments: - (a) The U.S. Army chain of evacuation and hospitalization facilities as established within the British Isles would have been a credit to any nation. These facilities

were supplemented by medical installations in the various U.S. Naval bases and by the thousand-bed U.S. Naval Base Hospital at Netley, Hants. Although not in the direct chain of evacuation, these naval activities played an important and creditable part in the care and treatment of all casualties coming under their cognizance.

77.2 MEDICAL MATERIEL

i. Comments: - (a) Facilities for effecting medical materiel resupply set up conjointly with the U.S. Army, functioned most satisfactorily.

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PART V

RECOGNITION OF SERVICE

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78. As the Force Medical Officer of the Western Naval Task Force, I wish to record that American medical personnel, Army and Navy, officer and enlisted, did without exception render service and perform duties in keeping with the highest traditions of the United States Military Services in the preparation for and execution of this amphibious operation.

79. Special mention must be made of the excellent performance of duty by the U.S. Navy Hospital Corps officer personnel involved in this operation. Their service background, sound practical knowledge and comprehension of administrative detail did much to facilitate the final accomplishments of the Naval medical service.

80. Because of the number involved, for me to give special recognition to all individuals who deserve credit would be an impossible task. However, I wish to acknowledge the outstanding performance of duty by the following U.S. Navy personnel. The service performed by each directly effected the medical service of the Western Naval Task Force.

Name	Rank	Command
F. J. FAUX	Lieut. (MC) USNR.	TF 122 (WNTF)
C. C. FOWKES	Lieut. (HC) USN.	TF 122 "
W. A. DuCHARME	Lieut. (HC) USN.	TF 122 "
V. R. SCHMAHL	Lt. (jg) (HC) USN.	TF 122 "
F. B. SONTAG	Ch. Pharm. USN.	TF 122 "
R. O. LOGSDON, Jr.	Pharm. USN.	TF 122 "
J. J. KUNNEN	PhM 1c. USN.	TF 122 "
H. J. GOFF	Capt. (MC) USN.	11thPhib (Assault For "O").
M. A. COMSTOCK	Pharm. USN.	11thPhib (Assault For "O").
L. G. BELL	Comdr. (MC) USN.	Service Force 122
W. S. LANE	Lieut. (MC) USNR.	Service Force 122
J. P. SMITH	Lieut. (HC) USN.	Service Force 122
M. H. WILLIAMS	Ens. (HC) USN.	Service Force 122
E. S. LOWE	Comdr. (MC) USN	Assault Force"U"
M. P. HUBER	Lieut. (HC) USN	Assault Force "U"
G. P. HARRIS	Lt. Comdr. (MC) USN	Shuttle Control
E. N. MARKWICK	Ch. Pharm. USN.	Shuttle Control
E. V. REYNOLDS	Lieut. (MC) USN	2nd Beach Battalion
E. L. VAN LANDINGHAM Jr.	Ens. (HC) USN	ComNavEu (NavMedStorehouse#12).
L. K. THOMPSON	Ens. (HC) USN	ComNavEu (NavMedStorehouse#12).
(Medical Representatives at casualty debarkation ports)		
J. H. BING	Pharm. USN.	Service Force 122 (Brixham).
G. V. BELL	Pharm. USN.	Service Force 122 (Southampton).
R. F. WARD.	Pharm. USN.	Service Force 122 (Portland).

81. Commander Task Force ONE TWO TWO officially expressed his appreciation, by letters of commendation, of the cooperation of the U.S. Army medical service rendered by the Chief Surgeons, ETOUSA and First U.S. Army. Further acknowledgment should include the Chief Surgeon, Southern Base Section, and his assistants, a number of whom are listed in Part VI, Appendix M, Page 1, whose cooperation prior to and during the operation contributed greatly to the success of the joint medical service.

PART VI

APPENDIX

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APPENDIX A

MEDICAL ESTIMATE OF THE SITUATION

NOTE: Specific reference, in the text of the report is made to this Appendix as follows:

Page 4 (PART II, paragraph 9.)
Page 9 (PART II, paragraph 19.)
Page 11 (PART II, paragraph 35.1, iv.)

UNITED STATES FLEET
TASK FORCE ONE TWO TWO

CTF122/A16(3) (75)

Navy 803
Care Fleet Post Office
New York, N. Y.

1 March 1944.

From: Force Medical Officer.
To : Commander Task Force ONE TWO TWO.

Subject: Medical Estimate of the Situation, Operation OVERLORD.

1. Subject Estimate, based on latest available information, is herewith submitted.

I. MISSION.

a. Summary of the situation.

Casualty handling in an amphibious operation presents many difficult problems because of the complexity of such operations. Fundamentally, it is governed by the military rather than the humanitarian consideration. Nevertheless, it constitutes a morale factor of great concern to the combatant branches and-to the home front.

Preliminary studies indicate that high casualty rates must be anticipated in Operation OVERLORD. This presents problems in treatment and evacuation, with the latter becoming a factor of paramount importance for the following reasons:

1. The evacuation, being in the nature of a major withdrawal, must be made against a constant flow of troops and supplies with interference kept to a minimum.

2. Evacuation must be carried on regardless of weather, terrain or conditions of combat.

b. Formulation of the mission.

Task Force 122 will supply medical service for all its component parts in support of the Joint Operations Plan. This consists of medical service to all attached and embarked forces between the ports of embarkation and the far-shore landing beaches. Included in this is joint medical service by Army and Navy to all personnel in the beach area. Later, for seaward evacuation and medical service afloat from the far-shore landing beaches to the near-shore ports and/or bases.

II. SURVEY OF OPPOSING STRENGTHS.

a. Psychologic factors.

1. Morale.

(a) Allied Forces.

The morale of the Allied Forces is considered to be excellent. This is particularly true of those American Forces who have participated in previous amphibious operations where organized resistance was only nominal. Placed against resistance comparable to Dieppe or Tarawa, particularly if confronted with chemical warfare, they will undoubtedly uphold American traditions but, should be fortified by a knowledge of such possibilities.

(b) Enemy Forces.

Morale believed to be unbroken.

2. Training and experience.

With the inclusion of trained and experienced troops in the operation, one can anticipate a minimum of confusion. However, intensive training should be given in gas discipline which should be brought to the highest state of perfection. Certain medical personnel are, as yet, untrained and inexperienced. In this group are:

(a) Navy medical personnel.

(1) In ships, craft and for advanced bases except for a small number who have participated in previous operations.

(2) To be assigned to LSTs for casualty evacuation.

(3) The Sixth and Seventh Beach Battalions were trained in the States, but will require advanced training in this Theater.

(b) Army medical personnel that may be requested for duty in LSTs during the assault phase.

b. Character of the Theater of Operation.

1. Hydrography and Terrain.

The gradient varies from 1:6 to 1:92 with an average of 1:30; Tides vary from 20 to 25 feet; beaches are suitable for landing craft. Beaches may or may not be backed by dunes which present defiles as channels for deeper penetration inland and afford some cover from direct fire to wounded collected on the beaches.

2. Weather.

An off-shore wind during time of attack prevails on many beach areas. During hours of attack, the meteorological conditions favor the use of gas i. e., inversion conditions present will keep a gas-cloud clinging both to ground and water surfaces.

c. Composition of armed forces.

1. U.S. Navy:

Vessels (types)
Combatant:
Fire support
Screen
Mine craft
Others
Assault ships:
Transports
Cargo carriers
Landing ships
Others
Landing craft
LCI(L)
LCT 5 & 6
LCV(P)
Others

2. U. S. Army:

Assault divisions
Support divisions
Follow-up divisions

3. Allies:

Navy: Such vessels as may be assigned or may enter the American Areas.

Army: Such elements as may be assigned to, pass or be evacuated through, the American Areas.

d. Casualty estimates.

1. Overall casualty estimates - until normal land warfare develops.

Army: 5 - 8%)
) - Sick and non-battle casualties .17 of 1%.
Navy: 4 - 8%)

(a) Assault phase.

Army

The overall daily percentage of Army battle-casualties exclusive of dead, missing and captured are estimated as follows:

D Day	12.0%
D plus 1 day	6.5%
D plus 2 days	6.5%
D plus 3 to 6 days	3.0%
D plus 7 to 10 days	1.5%
D plus 11 to 17 days	0.5%

Navy

The overall daily percentage of Navy battle-casualties, exclusive of dead, missing, drowned, and captured are estimated as follows:

D day	5-8%
D plus 1 to 4 days	2½-5%
D plus 5 to 10 days	1½-3%
Thereafter	½-1%

Note: These estimates do not include casualties caused by chemical warfare. The following should be added to the above for troops and forces afloat exposed to chemical agents:

Non-persistent agents:

Minimum - 10% (Gas mask worn by maximum number of troops.)

Maximum - 80% (Masking interfered with as in wading ashore in deep water.)

Persistent agents:

Minimum - 20% (Gas mask and protective clothing worn.)

Maximum - 30 - 40% (Dependent on the number of gas masks rendered unserviceable by water.)

2. Breakdown of casualty estimates.

(a) Army.

(1) Transportability.

	D to D Plus 1	D plus 2 & thereafter
Killed - missing - captured	30%	25%
Wounded	70%	75%

(2) Classification.

Ambulatory..... 50%
Stretcher cases..... 45%
Non-transportables..... 5%

(b) Navy.

Overall craft casualties - %.

Craft lost - %
Craft damaged - %

Of these, 60% occur on the outbound trip and 40% on the return trip.

Personnel casualties due to craft casualties by trips;

	Outbound	Return
In craft lost.....	42%	.....28%
In craft damaged.....	12%	..... 8%

(1) Transportability.

Killed - missing - drowned. 50%
Wounded 50%

(2) Classification.

Ambulatory. 30%
Stretcher cases 70%

e. Logistic support.

Premise:

That medical materiel will be available in sufficient quantities to support the mission of medical service in Operation OVERLORD.

That there will be sufficient versatility of handling replenishment supplies to envelop any situation.

1. Problems of medical supplies.

(a) For evacuation and treatment afloat.

(1) ISTs.

(2) APAs.

(3) Other ships and craft involved in the assault.

(4) Hospital, hospital carrier and ambulance ships.

(b) For Navy Medical Section, Shore Party.

(c) Naval personnel in craft, ferry service, etc., in vicinity of far-shore.

(d) For automatic property exchange.

Definition: Automatic property exchange is a system of medical resupply developed for land warfare to keep a constant flow forward of certain critical medical materiel.

Theoretically, item for item is exchanged as casualties are received.

Actually, item for item is exchanged PLUS any demand made by a forward echelon for such items as are available.

Composition: The initial concept was primarily to keep a constant flow forward of litters and blankets. (For each litter case evacuated to the rear, a blanket and litter was taken forward by the litter-squad.)

In operation OVERLORD, the following Unit of Medical Supplies designated for property exchange, will be carried on the first and subsequent trips by LSTs, for delivery on the far-shore until 300 units have left the near-shore.

UNIT OF MEDICAL SUPPLIES

ITEM	UNIT	NUMBER	TOTAL WEIGHT	TOTAL CUBAGE
Blankets	Small sets (8 blankets)	40	1600	200
Litters	One	100	1600	125
Splint sets	Each	4	96	14
Dressings	Case	3	150	12
Plasma	Box (12 units)	8	500	24
Splint litter bars	Each	24	25	4
TOTAL			3971	379

The U.S. Army is responsible on the near-shore for the provision of the unit of medical supplies listed above for initially supplying LSTs for property exchange; the provision and delivery of additional units of medical supplies to each LST for subsequent trips; and the provision of such additional medical supplies and equipment in the immediate vicinity of designated near-shore ports and hards as may be necessary to meet emergency requirements arising in connection with shore-to-shore evacuation.

The Army has assumed the responsibility for unloading the Units of Medical Supplies from LSTs at the far-shore.

2. Assault phase. (First 10 days.) Evacuation and treatment afloat.

Premise:

That LSTs will be utilized to provide the major casualty lift.

That during the early assault phase, LSTs will be prepared to assume the role of "Third Echelon Medical Treatment" as is provided by the Army Mobile Unit of an Evacuation Hospital.

That to assume the above role of treatment in shore-to-shore casualty evacuation, Army medical personnel will be made available, on call, to augment Navy medical personnel in LSTs.

(a) Availability and adequacy of personnel and materiel.

(1) Medical personnel-operational.

LST complements

Navy

120 medical officers and 2,400 hospital corpsmen are being provided to man casualty converted LSTs. A few additional Naval medical personnel may be temporarily available for this task from craft other than LST's.

Army

Additional medical personnel should be requested from the Army. CNO secret letter, serial 0174612 of 28 October 1943 is quoted in part: "- - - - - - If additional medical personnel are considered necessary, consult the Commanding General, ETOUSA concerning the assignment of Army medical personnel to supplement the Navy contingent". Additional medical personnel are considered necessary to accomplish the task for the following reasons:

Present casualty estimates (less gas casualties) indicate that an average of 5,000 per day will be evacuated afloat for at least the first ten days.

To provide the estimated required casualty lift, all LSTs of the Western Task Force will be either implemented or specially equipped for casualty handling on a basis of two hundred (200) casualties per LST per return trip.

The minimum operational number of medical personnel required per LST for casualty handling is considered to be two (2) medical officers and twenty (20) hospital corpsmen. This number should be augmented by additional medical personnel from D to D plus 3 or 4 days if Third Echelon medical treatment is requested by the Army.

In accordance with CNO secret letter serial 0174612 of 28 October 1943, two (2) medical officers and forty (40) hospital corpsmen were assigned to each of the 60 casualty converted LSTs . This personnel was to support a three divisional assault. Changes that have occurred since October 1943 altering the medical personnel requirements are as follows:

Additional divisions assigned to the Western Task Force.

Increased personnel involved in the assault has increased the casualty estimates.

Increase in casualties has proportionately increased the required casualty lift.

An additional twenty-three (23) casualty equipped LSTs have been allotted.

The operational change in concept of handling casualties in all LSTs instead of those specially equipped.

The operational change in concept of medical personnel requirements per LST from two (2) medical officers and twenty (20) corpsmen as a minimal requirement; supplemented with additional medical personnel during the initial assault and until D plus 3 or 4 days.

Surgical consultants of the 21 Army Group and the Royal Navy have advised that the 40-45 LSTs of the British Navy will be complemented with not less than three (3) medical officers, twenty (20) sick-bay attendants and ten (10) ordinary seamen. The latter to serve as stretcher bearers. The 21 Army Group is manning the remaining LSTs of the Eastern Task Force similarly.

(2) Medical Supplies - operational.

Initial Supply - for LSTs.

Sufficient basic medical supplies on 60 LSTs, being supplied and equipped in the U.S. will provide for 24,000 casualties, (960 Units "A" supplemented by 960 Beach Bags.)

If the 23 additional LSTs requested are likewise supplied and equipped in the U.S., supplies thus received will provide for 9,200 casualties. (368 Units "A" supplemented by 368 Beach Bags).

Based on supplies thus received rather than on available casualty lift provided by these 83 LSTs, initial medical supplies sufficient for 33,200 casualties is being provided by these 83 LSTs.

Resupply - for LSTs.

Estimates have been prepared for 10 days (D through D plus 9) based on the following assumptions:

That all (100) LSTs will be implemented for casualty handling i.e., medically supplied and staffed.

That in addition to the above, certain LSTs (60 and possibly 83) will be specially equipped i.e., stretcher brackets, etc.

That, for planning purposes, 200 casualties be considered the average maximum lift per ship.

That each LST will make 3 turn-arounds (10 days).

That medical supplies expended in the treatment of casualties will be replenished when casualties are debarked on the near-shore.

That medical supply dumps will be established at three designated near-shore hards where casualties are debarked.

That, after D plus 9, Army medical and supply facilities will be functioning normally on the far-shore.

That casualties evacuated from the far-shore after D plus 9 will have received adequate initial first aid ashore and that very little additional surgery will be required.

That there will be a total of 356 LST trips from D to D plus 9, based on the following:

100 LSTs initially available.
90 LSTs available for 1st turn-around due to ship losses.
85 LSTs available for 2nd turn-around due to ship losses.
81 LSTs available for 3rd turn-around due to ship losses.

356 LST trips.

That 356 ships carrying 200 casualties per ship provides for 71,200 casualties.

That evacuable casualty estimates from D to D plus 9 in accordance with the present available information are:

	Casualties
U.S. Army	44,306
U.S. Navy	9,413
Prisoners of War	2,000
Allies	(No information)
Airborne	(No information)
TOTAL	55,719

If chemical agents are used, gas casualties are estimated to approximate an additional 20%.

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Recapitulation:

	Casualties
Facilities for	71,200
Present casualty estimates (less chemical warfare).	55,719
Chemical warfare casualties	10,000
Estimated TOTAL	65,719

Note: For planning purposes, a UNIT of estimate has thus been established. Since the types of supplies required vary during the stages of the attack, an arbitrary figure of D through D plus 9 is termed assault phase and from D plus 10 on, as the follow-up phase.

The assault phase requires the greatest amount of medical supplies by vessels afloat as it is during this phase that treatment rendered ashore is the least definitive. Therefore, all estimates should be based on the assault phase and supplies for the follow-up phase estimated on a percentage basis.

3. Follow-up phase - for LSTs (After 10 days and until D plus 90.)

Premise:

That the assault phase of the major attack is completed.

That automatic property exchange will continue to be practiced until 300 Units of Medical Supplies have been loaded on LSTs at the near-shore.

That LSTs will continue to be employed to furnish the major casualty lift but that certain numbers of these may be withdrawn for use in further amphibious assaults.

That, in other than further amphibious assaults, the supply requirements of evacuated casualties will lessen due to the nature of the wounded transported. They will have received more definitive treatment ashore hence, afloat, their needs will be largely nursing rather than major first-aid.

(a) Based on the above unit of estimate, it is deemed necessary to additionally provide 50% of the expendible medical supplies less equipment for the follow-up phase and 30% for further amphibious assaults.

4. Medical supplies for vessels other than LSTs.

(a) No provision has been made nor intended, in the basic estimate, for the resupply requirements of combatant ships (including APAs), hospital ships, etc. Based on the supplies in stock on these vessels when they arrive in this theater and on the nominal rate of use due to their employment in the operation, it is felt that the normal stock of medical storehouses in UK will provide for their requirements. However, this is a contingency that must not be overlooked.

f. Casualty evacuation.

1. The principal task of the Medical Services of Task Force 122 in Operation OVERLORD is that of shore-to-shore evacuation.

2. Medical Services of Task Force 122 in Operation OVERLORD is that of a middle link in the chain of evacuation. The Assault Force constitutes the far-shore link; ETOUSA plus COMNAVEU, the near-shore link.

3. Casualty estimates and available lift should be used as a basis of planning. However, there are so many intangible factors, which can not be foreseen during planning, that the maximum available facilities consistent with the military requirements should be medically implemented for the task. Thus, in action, sufficient flexibility will be provided to meet the maximum number of exigencies.

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4. Based on the above, the following policies are being adopted:

(a) Shore to ship phase.

Any boat used in amphibious operations, including DUKWs, may be utilized for evacuating casualties from the beach.

Specially designed ambulance boats, or boats converted for exclusive use as ambulance boats will not be available.

All landing boats will carry sufficient first aid material to effect emergency first aid.

Ineffectives resulting from casualties occurring in the boats during any phase will be retained in the boats for seaward evacuation when practicable.

Boat crews of landing boats will be responsible for casualty handling and emergency first aid in their boats.

(b) Ship phase.

That the maximum number of casualty equipped LSTs be made available to the American Forces for the major casualty lift.

That all other LSTs employed by the American Forces be implemented to carry casualties.

That APAs provide such casualty lift as the military situation permits.

That LCI(L)s be implemented to carry such ambulatory cases as is practical.

A study be made to determine the capabilities and feasibilities of employing other type vessels for casualty handling and implementing them.

That ambulance ships and hospital ships become available as soon as is expedient.

That casualty evacuation by air be instituted as early as is expedient.

III. ENEMY COURSES OF ACTION.

a. Assumptions.

1. Enemy's knowledge.

The knowledge of an impending attack is assumed. There may or may not be surprise as to the exact time and location.

2. Hostile tactical doctrine.

Use of gas as adjunct to defense against assault must be expected. The use of a casualty-producing non-persistent agent near the water line and of a persistent gas further inland appears most logical.

IV. DECISION.

Premise:

Any contingency for which the attacking force is least prepared is that which could cause failure of the assault.

a. Training.

1. All personnel.

Defensive measures and personal first aid in chemical warfare.

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2. Medical personnel.

All to be specially trained in defensive chemical warfare measures and treatment of chemical warfare casualties.

All to participate in as many exercises as possible, under 11th Phib.

LST crews (Army and Navy medical complements.)

Special training in use of medical facilities provided on LST for casualty treatment and evacuation.

Navy Medical Section, Shore Party.

Advanced training with Army Far-Shore Medical Battalions.

b. Medical personnel - operational requirements.

1. LST Complements.

(a) The essential operational working minimum is considered to be 2 medical officers and 20 hospital corpsmen per LST.

(b) In the early assault phase, supplemental Army medical personnel will be available, on call.

2. Other vessels.

It has been suggested that APAs and AKAs augment medical personnel complements to the HUSKY standards, prior to arrival in ETO.

c. Medical supplies - operational.

1. Army will furnish items of Unit Medical Supplies for automatic property exchange to ships evacuating casualties to the near shore.

2. Navy.

(a) CTF 122 has provided COMNAVEU estimates of operational requirements.

(b) COMNAVEU has been requested to provide supplies, on basis of these estimates, in UK as well as a sufficient reserve supply.

(c) Commander ELEVENTH Amphibious Force will direct vessels to provide (requisition) from UK storehouses.

(d) Commander Landing Craft and Bases, 11th Amphibious Force will direct LSTs, craft and bases to provide from UK storehouses.

(e) APAs and AKAs have been advised to augment medical supplies to the HUSKY standards, prior to arrival in ETO.

(f) Commander Landing Craft and Bases, 11th Amphibious Force will provide auxiliary storage space for operational medical supplies as may be designated.

d. Evacuation.

1. LSTs will be employed for the major casualty lift.

2. Other vessels will become available as the action progresses.

3. Casualty reports.

(a) All commissioned vessels will keep a permanent ship's record of casualties handled.

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(1) Running Battle Casualty Record.
(Primarily intended for use by ISTs.)

Prepared in triplicate - (tentative concept):

Original - Ship's permanent files.
Duplicate - To a central statistical center which will be designated later.
Triplicate - To the near-shore activity receiving casualties from the ship.

G. B. DOWLING

APPENDIX B

ADAPTATION OF A LITTER SLING AND HOIST FOR LSTs

Description and illustrations

NOTE: Specific reference, in the text of the report. is made to this Appendix, as follows:

Page 5 (PART II, paragraph 12.1,vi)

ADAPTATION OF A LITTER SLING AND HOIST FOR LST's.

Description

One after davit on each side of the LST was rigged with a jigger (double block above and single block below) secured to the lizard of the strengthening beam between the arms of the davits (Fig. 1). From this a sling was suspended which had 2 x 4 beams attached to facilitate handling the litter (Fig. 2). Two guide lines were attached, one to each 2 x 4 beam at the loop. The davits were lowered to a point at which the sling would be in the middle of an LCVP, were it tied alongside, and they were left in that position. A third guide line was attached to the iron triangle of the sling.

Small craft, including amphibious trucks (DUKW's) were tied alongside the LST. Bunk straps and the sling were lowered. The crew of the small craft secured the patient to the litter by means of the bunk straps and attached the litter to the sling by sliding the handles of the litter through the loops of the sling. The lower guide lines were handled by a crewman in the small craft who was thus enabled to steady the litter during its ascent and to hold it parallel to the freeboard of the LST until it reached the ship's deck level.

Two men were able to hoist the litter by handling the line, bringing it to the level of the deck. A third maneuvered the guide line attached to the iron triangle of the sling, slight tension on this line steadying the ascending litter and further tension at the deck level pulling the litter within reach of the corpsman on the deck.

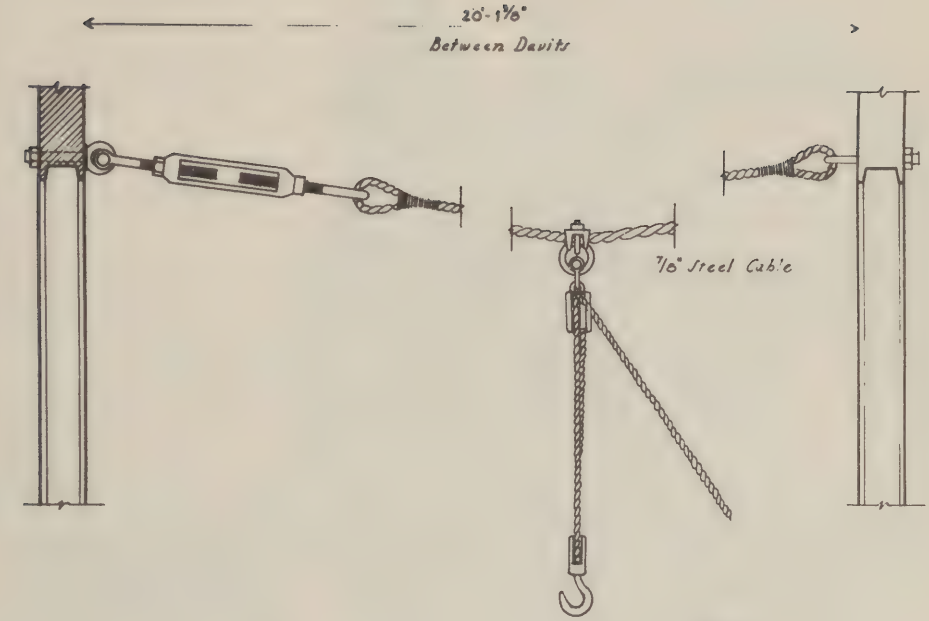

20'-1⅛"
Between Davits
7/8" Steel Cable

Fig. 1

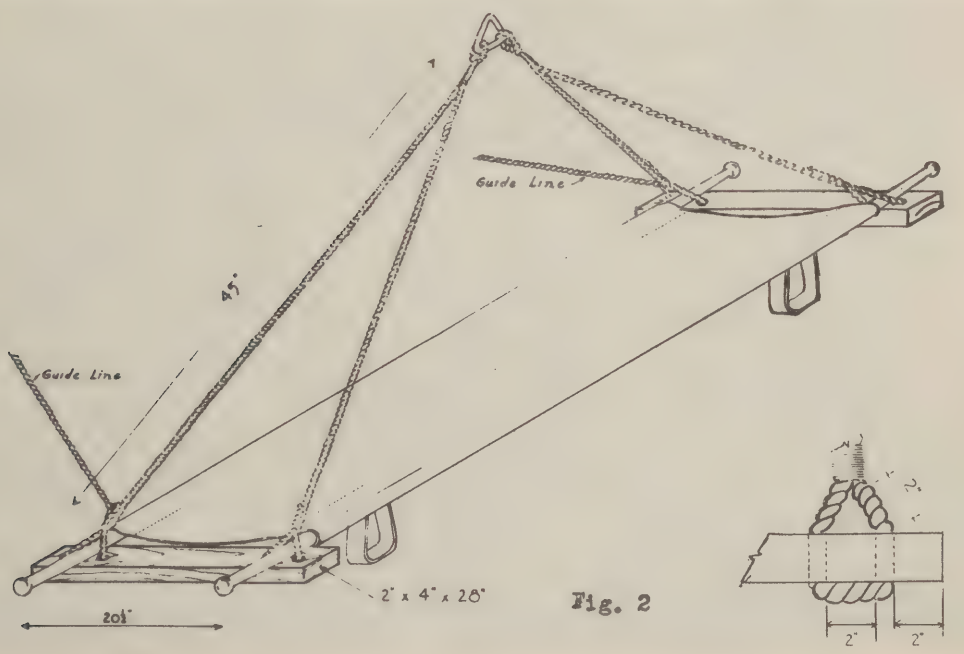

Guide Line
45°
Guide Line
20'
2" x 4" x 28"
2"
2"

Fig. 2



Litter hoist from landing craft alongside LST.

APPENDIX C

CASUALTY HANDLING TRAINING EXERCISE

Operation Order and Medical Plan

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 7 (PART II, paragraph 16.1, ii.)

RESTRICTED SECRET

A4-3(11/Cn)
Serial: 00711

12th Fleet
Eleventh Amphibious Force
Landing Craft and Bases,
Eleventh Amphibious Force

OPERATION ORDER - CASUALTY EVACUATION
No. 4-44.

Plymouth, Devon.
31 March 1944.

TASK ORGANIZATION.

(a) Ship and Craft - Lieutenant H. S. SOUTHWORTH, USNR.
LST 281
LCI(L) 529 - alternate 530
LCT 580 - alternate 536
LCM 1 of Fowey Unit.
LCVPs - Ship borne.

(b) Ship-borne Medical Personnel - Lieut. W. S. LANE. (MC), USNR.

(c) Three Platoons of 2nd Beach Battalion - Commander J. F. CURTIN, USN.

(d) First Engineer Special Brigade.

(e) U.S. Naval Advanced Amphibious Training Sub-Base, Fowey - Commander L. W. SNELL, USNR.

1. The Casualty Evacuation Exercise precribed by this order will be witnessed and closely observed by numerous representatives of higher echelons, who have vital interest in developing efficient methods of handling casualties under battle conditions. The purpose of this exercise is to develop and test such methods.

2. This Force will conduct Casualty Evacuation Exercise simulating battle conditions at Pentuan Beach on 12 April, basing at Fowey.

3. (a) Ship and Craft conduct Casualty Evacuation Exercise off Pentuan Beach simulating battle conditions in accordance with Medical Plan, Annex Able. Develop procedures necessary for efficient casualty evacuation for each type of craft involved with particular attention to methods of handling craft alongside the ship and of removing casualties into the ship.

(b) Ship-borne Medical Personnel conduct drill in handling casualties in accordance with Medical Plan, Annex Able. Develop procedures for handling casualties in transit from craft alongside and into ship spaces provided.

(c) 2nd Beach Battalion conduct casualty drill in accordance with Medical Plan, Annex Able, performing normal functions of beach battalion simulating battle conditions. Develop any procedures necessary and not presently existing for the performance of these functions.

(d) First Engineer Special Brigade conduct drills in casualty evacuation in accordance with Medical Plan, Annex Able. Provide necessary shore installations. Provide personnel for simulated casualties.

(e) U.S. Naval Advanced Amphibious Training Sub-Base, Fowey furnish logistic support to Ship and Craft Unit. Designate craft as required. Sail ship and craft as requested by OTC. Arrange for escort as required.

(x) Unit Commanders coordinate Exercise referring any questions to Commander Landing Craft and Bases. Conduct training exercises prior to exercise scheduled for 12 April

4. U.S. Naval Advanced Amphibious Training Sub-Base, Fowey, will furnish logistic support.

5. Commander Landing Craft and Bases, Eleventh Amphibious Force at Plymouth, Devon.
Use normal communications.
Use Zone Baker Time.
Officer in Tactical Command - Lieutenant Harold R. SOUTHWORTH, USNR., IN US LST 281.

/s/ ROGER E. NELSON
Captain, U.S. Navy
Operations Officer,
LANDING CRAFT AND BASES,
ELEVENTH AMPHIBIOUS FORCE.

ANNEX:
A. Medical Plan.

A4-3(11/Cn)
Serial: 00711

31 March 1944

ANNEX 'A' TO
LANDING CRAFT AND BASES, ELEVENTH AMPHIBIOUS FORCE
OPERATION ORDER NO. 4-44
CASUALTY EVACUATION.

MEDICAL PLAN FOR CASUALTY HANDLING DEMONSTRATION

1. Object: To demonstrate practical methods of casualty handling on LST's during an amphibious assault. Assumption is that casualties are being loaded while ship is being unloaded.

(a) It is desired to develop the following:

(i) The technique of handling casualties.
(ii) Determine faulty concepts.
(iii) Disclose any weakness in preparation.
(iv) Provide participating elements with a view of chain of evacuation.
(v) The opportunity of taking a training film for teaching purpose and record.

2. Army Components:

(a) Personnel:

(i) First Engineer Special Brigade
(aa) Far shore medical company 8 officers and 118 men.
(bb) Shore party battalion aid station.
(cc) Simulated casualties 170 men.
(ii) Casualty collecting detachment of divisional medical battalion.
(iii) Army graves registration section.

(b) Equipment:

(i) Supplies and equipment to accomplish mission as anticipated in an amphibious assault, including 170 stretcher units and 4 casualty handling DUKWs.
(ii) Public address system mobile.

3. Navy Components:

(a) Personnel:

(i) Three (3) platoons of a Beach Battalion.
(ii) Personnel on LST as designated by Commanding Officer to hoist casualties aboard.
(iii) Two (2) medical officers and twenty (20) hospital corpsmen attached to LST.

(b) Craft:

(i) LST Hospital converted.
(ii) One (1) LCI(L), One (1) LCT, One (1) LCM, Two (2) LCVP's.
(iii) Four (4) DUKWs casualty equipped (to be furnished and operated by Army).

4. Army components will set up on beach and adjacent areas to approximate condition expected at H plus 8 hours on "Y" day.

5. Hospital converted LST and other craft will be off shore to receive casualties beginning at (hour set by OTC).

6. Army responsibility:

(a) Designate 170 simulated casualties.
(b) Tag and render first aid to simulated casualties. (Casualties to be of types and in proportion to estimated battle rates i.e., 10 dead, 10 non-transportable, etc.).
(c) Evacuate casualties to high water mark of beach, loading craft and boats designated to evacuate casualties to ships.

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(d) Load DUKWs with casualties for evacuation to ship.
(e) Demonstrate ability of battle aid stations to shift location in consonance with battle trends.
(f) Anticipate that battle losses will sorely deplete motorized equipment. Develop alternate plans for handling casualties.
(g) Unload and transport medical resupply units.

7. Navy Responsibility:

(a) Evacuate casualties from high water mark on designated craft to LST.
(b) Load casualties aboard LST and disseminate to battle dressing stations and compartments about the ship.
(c) Set up battle dressing stations on board ship to simulate battle conditions.
(d) Prepare running record of simulated casualties.

8. Evacuation from the beach will be in craft listed below indicating casualty load and time of departure from the beach.

	TYPE	NUMBER CASUALTIES	TIME
(a)	One (1) LCVP	15	0900
(b)	One (1) LCI(L)	15	0900
(c)	Two (2) DUKWs	10 each	0930
(d)	One (1) LCT	50	1000
(e)	One (1) LCM and One (1) LCVP	15 each	1100
(f)	Two (2) DUKWs*	10 each	1130

*DUKWs to be driven through ramp and unloaded on tank deck.

9. Care of the dead:

(a) Casualties dead upon arrival at the beach will be turned over to Army graves registration section for disposition.
(b) Deaths occurring enroute to ships will be returned to beach.

10. Army stretcher units and other equipment will be returned to the Army at the end of the exercise.

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Loading casualties in a beached LCVP rigged with racks to increase casualty carrying capacity.



A jeep-load of casualties going aboard a beached
LCT for evacuation seaward.

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A DUKW-load of casualties is brought aboard over the ramp, while LST is afloat.



LCVP, loaded with casualties arrives along side LST. Bunk straps are put on preparatory to hoisting casualties to LST deck.

SECRET

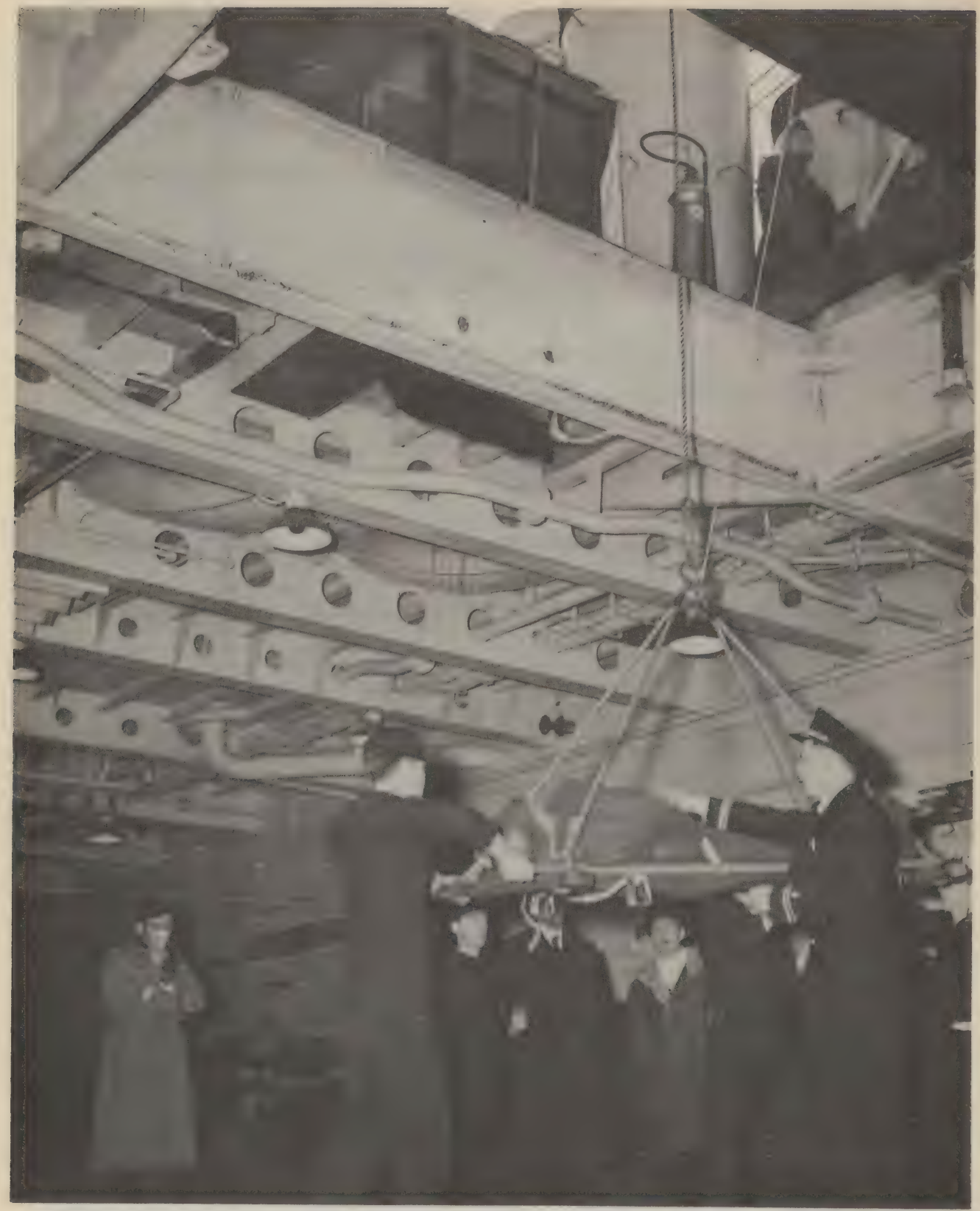


Litter hoist from DUKW alongside LST.



Hoisted litter at LST deck level.

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Casualty being lowered through cargo hatch to LST tank deck.

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Removing sling from litter.



Bulkhead of LST tank deck showing litter brackets
stowage racks.



"Running Record of Battle Casualties" being made out on a newly arrived casualty aboard a LST. (See pages 2, 3 and 4 of Appendix H.)

SECRET

APPENDIX D

TRAINING PAMPHLET

"CASUALTY HANDLING IN AMPHIBIOUS OPERATIONS"

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 8 (PART II, paragraphs 16.4 and 17

CASUALTY HANDLING

IN

AMPHIBIOUS OPERATIONS

UNITED STATES FLEET

TASK FORCE ONE TWO TWO

CTF122/P11-1(75)

Navy 803
c/o Fleet Post Office
New York, N.Y.

24 February 1944

From: Commander Task Force One Two Two
To: Commander Eleventh Amphibious Force.

Subject: Pamphlet "Casualty Handling in Amphibious Operations". forwarding of.

Enclosure: (A) 470 copies of subject pamphlet.

1. Enclosure (A) forwarded for distribution to:

a. LST medical personnel.
b. APA's and AKA's.
c. Beach Battalion Navy Medical personnel.
d. Medical personnel of Lan Crab, 11th Phib. (Bases only).

2. Text of subject pamphlet was prepared conjointly by medical representatives from First U. S. Army and Task Force 122. It represents a compilation of available information and instructions, to serve as a guide to U.S. Army and Navy medical personnel.

A. D. STRUBLE,

Copies to:

SHAEF (10)
ADMIRALTY DGMS (2)
ANCXF (5)
COMNAVEU (5)
CG, FUSAG (10)
CG, FUSA (250)
CG, ETOUSA (5)
CG, TUSA (2)
ComGroup 2, 11th Phib (6)
CTG 127.2 (25)
FS (1)
CO HQ SBS SOS ETOUSA (10)
RAMC - DGAMS (2)
DMS 21 AG (1)
DDMS 2nd Army (1)
DDMS 1st Corps (1)

s/R.T.CRAGG,
Flag Secretary

INTRODUCTION

This pamphlet has been prepared conjointly by medical representatives from U.S. Army and Navy Service, ETO.

It is a compilation of available information and instructions to serve as a guide for Army and Navy medical personnel.

To allow a Restricted Classification and thus insure the widest possible distribution, information contained herein has been limited to that which is general in nature.

It is of paramount importance that all medical personnel concerned with casualty handling study this pamphlet in detail.

I GENERAL INFORMATION.

1. Casualty handling is a fundamental task of the medical service in support of an amphibious operation.

   a. THE NAVY IS RESPONSIBLE FOR medical service to all attached and embarked forces between ports of embarkation and the far-shore landing beaches. Included in this is Joint Medical Service by Navy and Army to all personnel in the beach area. Later, for seaward evacuation and hospitalization afloat from the far-shore landing beaches to near-shore ports and/or bases.

   b. THE ARMY IS RESPONSIBLE FOR medical service to its own personnel during the embarkation phase and landward of the far-shore landing beaches. Included in this is a Joint Medical Service by Army and Navy to all personnel in the beach area. Later, to its own personnel during the debarkation phase at near-shore ports and/or bases.

   (Note: As used in the text, near-shore is intended to indicate that shore from which an operation (landing attack) is launched and far-shore the hostile landing beaches.)

2. Due to the complexity of amphibious operations, casualty handling presents many difficult problems. Complete standardization of technic is impractical. Sufficient flexibility to meet ever changing military conditions is imperative.

3. The degree of efficiency of casualty handling in actual operations depends upon the following:

   a. The soundness of basic teaching.

   b. The state of training and preparation of the organization.

   c. A Medical Plan, sufficiently flexible to encompass any deviation from the anticipated.

   d. A thorough understanding of the Plan by every individual concerned and a full appreciation of his tasks.

4. Fundamentally, casualty handling is governed by the military rather than by the humanitarian considerations. Fire-power must be maintained regardless of the wounded as must be the water-tight integrity afloat. Efficient casualty handling is still possible, despite the aforementioned. This is especially true when it is realized that casualty handling constitutes a morale factor of great concern to the combatant branches. Anything that detracts the attention of the combat troop decreases his value as a fighter. Thus, to lessen the shrieking and groaning of the wounded, to rapidly clear areas of personnel casualties and to maintain an efficient casualty handling service is of military value.

II DEFINITION.

1. Evacuation is the process of moving casualties from one medical installation to another further to the rear. The operation of evacuation of casualties is of the nature of a major withdrawal. Factors which render the operation difficult are:

   a. The withdrawal must be made against a constant flow of troops and supplies, and interference must be kept at a minimum.

   b. Evacuees are unorganized, and they must be gathered as individuals from all units of the force. They are not self supporting but require individual care and treatment throughout all stages of their withdrawal. A large proportion are unable to walk and must be carried each time they are moved.

c. Evacuation must be carried on at times under the most trying conditions of weather, terrain and combat. Conditions which seriously impede all movement, may increase the number to be evacuated.

III MEDICAL PLAN (ANNEX).

1. General Information.

The Medical Plan for a specific Landing Attack is generally prepared as a Landing Attack Plan ANNEX.

The Medical Annex should give only the basic policies of medical service for the operation. Specific plans for Casualty Evacuation will generally be an Appendix to the Medical Annex. The Task Force Medical Annex presents the policy of the Task Force. Detailed information should be left for the Medical Annex of the subordinate task groups concerned.

Each Medical Annex should be as simple and as brief as is consistent with proper dissemination of its contained information.

Medical officers responsible for the preparation of medical plans should be "in" on the planning in order that they be familiar with the plans their annex is designed to support. Further, medical officers need "processing" in the military picture in order to render efficient medico-military service.

Commanding Officers must fully realize the necessity of EARLIEST POSSIBLE DISTRIBUTION of medical plans to senior medical officers.

2. Preparation.

The Medical Plan may be prepared in the accepted Naval War College form as follows:

Task Organization consists of a tabular enumeration of the task forces into which the command has been divided.

Paragraph 1 is the information paragraph. It contains such available information of the enemy and own forces as is necessary for subordinates to understand the situation and coordinate efficiently. It is subdivided into subparagraphs:
a. Information-which is based on established facts and
b. Assumptions-that which is only a conjecture.

Paragraph 2 defines the task. It tells what is to be accomplished.

Paragraph 3 gives a detail of task assignments to the task groups.

Subparagraph (X) contains general information.

Paragraph 4 is the logistics paragraph. It sets forth the availability of service and supplies, to support the Medical Plan.

Paragraph 5, Axes of Signal Communication and Command sets the routing of communiques and establishes Command locations.

3. Casualty Evacuation Plan (Appendix).

a. General Information.

The Appendix, Casualty Evacuation, must permit sufficient flexibility to conform to changing situations. The following possibilities must be considered:

(1) Vessels in the transport area may depart when unloaded or may be forced out by hostile air, sea or undersea attack. This will necessitate changes in the normal chain of evacuation.

(2) Utilization of hospital ships for evacuation of patients seaward during the assault phase of amphibious operations is generally militarily inexpedient.

(3) In shore-to-shore movements, landing craft may be the sole means of seaward evacuation.

b. Preparation.

(1) The Evacuation Plan will contain the following:

A detail of the evacuation policy.

A tabulated enumeration of approximate casualty carrying capacities of vessels in the force.

A plan of evacuation that describes the routing of casualties in order of preference as well as alternate routings to guard against the unforeseen.

It will describe the responsibilities of each link in the chain of evacuation and determine the manner of accomplishment.

It will contain detailed information on required casualty reports.

It will contain detailed information relative to identification and disposition of remains.

It will contain detailed information on matters pertaining to medical supplies.

IV EVACUATION.

1. Navy Medical Section, Shore Party (Far-shore) is responsible for:

a. First aid in the vicinity of the beaches conjointly with Army medical elements in or passing through this area.

b. Establishing facilities for seaward evacuation in a manner to best afford protection to the casualties. (Present concept is to evacuate over the beach rather than to it.) (Note: Coordinates its function with Army Far-shore Medical Company when the latter commences to operate. See paragraph VII Army Medical Service, Regimental Landing Team Phase.)

c. Supervision of seaward casualty evacuation from vicinity of the beaches while under control of the Beachmaster.

d. A "running" record of casualties treated, evacuated and other relevant data.

2. Shore-to-ship (Far-shore).

a. Any boat or amphibious vehicle (DUKWs, jeeps, etc.) employed in landing operations may be used for casualty evacuation. Beachmasters will avail themselves of every means at their disposal, to return the evacuable wounded to evacuation ships. However, availability of transportation will be governed by the military situation. The evacuation Plan will provide tabulated estimates of the casualty carrying capacities of vessels in the task force. Beachmasters will avail themselves of this information prior to the landing attack. Area Evacuation Officers afloat will inform the beachmasters when and if individual vessels near these capacity loads. (Except those vessels loading under direct supervision of the Beachmaster - LSTs, etc., loading at the beach.)

b. Except for those ineffectives resulting from casualties occurring in landing craft enroute to the beaches, generally, no casualties will be evacuated seaward until the assault battalions have landed. First aid in landing craft will be effected by boat crews who will have been properly instructed during the training period.

c. Wounded evacuated seaward will be sent to casualty carrying vessels as listed in the Evacuation Plan.

3. Ship Phase.

a. ASSAULT TRANSPORTS (APA) are prepared to function as casualty carriers from the theater of operation.

b. CONVOY LOADED TRANSPORTS (AP) offer nominal facilities for casualties.

c. ASSAULT CARGO CARRIERS (AKA) and DESTROYER TRANSPORTS (high speed) (APD) have very limited facilities.

d. LANDING SHIPS, TANK (LST): Any LST, if properly implemented with medical personnel and materiel, offers satisfactory facilities for seaward casualty evacuation. LSTs have been employed for this purpose in several operational theaters. To enhance their value for future tasks, certain changes have been effected such as stretcher brackets on bulkheads of tank deck; greater first aid facilities, etc.

e. LANDING CRAFT other than LSTs provide medical service to their own personnel to the limits of capacity and are prepared to carry additional casualties, on order.

f. SCREEN, FIRE SUPPORT, MINE CRAFT and other COMBAT SHIPS provide medical service to their own personnel to the limits of capacity. If overtaxed, they evacuate as determined by the Medical Plan.

V CASUALTY RECORDS AND REPORTS.

Every individual charged with the task of completing casualty reports must realize their importance and must exercise exacting care in every detail.

1. Casualty Reports for Evacuation Purposes.

a. Shore to ship phase. (Far-shore)

Area evacuation officer controls casualty evacuation afloat. Thus, all reports concerning casualty evacuation should center in his ship.

Keep reports to the essential minimum, i.e.,
Beaches report when evacuation bogs down.
Ships report when capacity load is neared.

Use any means available for transmission consistent with the means at hand.

Be definite in the information transmitted, i.e., location of sender (beach location or ship's name or number, etc.); number and types of casualties; time of day the message was originated.

b. Ship phase (In shore-to-shore evacuation).

All commissioned vessels will keep a permanent ship's record of all casualties handled.

The "Running Record of Battle Casualties", while primarily intended for use by LSTs, is well suited for this purpose. From it, subsequent casualty reports can be made as required.

LSTs will use this record as per instruction printed on the form.

As soon as communication security permits, vessels evacuating casualties to the near-shore will notify the port receiving casualties as to the number on board and types, i.e., stretcher or ambulatory, etc.

2. General.

a. Specific Information will be contained in the Evacuation Plan of the operation concerned.

b. Emergency medical tag.

The Army Emergency Medical Tag (EMT) will be used for all casualties and dead in as far as possible.

ON THE FAR-SHORE: On passing through the Army collecting company, all casualties for evacuation will be tagged with ETOUSA MD Form 321A. This tag is divided into three (3) sections. The Navy Beach Evacuation Station will retain the bottom section for preparing a log of patients evacuated. The remaining sections will be utilized by Army medical activities on the near-shore.

Prisoners of War: Write "PRISONER OF WAR - Nationality_____" boldly across the face of the tag.

The reverse side of tags used to tag the dead will contain pertinent data relative to the time, place and cause of death.

Non-transportable casualties (as indicated in column 17 of the "Running Record of Battle Casualties") evacuated to the near-shore by ships or craft will, upon debarkation, in addition to the Army EMT, be tagged with a Navy Diagnosis Tag, red borders intact. When used for this purpose, the Navy Diagnosis Tag will contain only the casualty case number (corresponding to column 1 of the "Running Record of Battle Casualties") and a brief indication of the type of wound or condition, i.e., HEAD - BELLY - GAS - LEG - CHEST - etc. Other than listed above, gas casualties need not be specially marked.

VI NAVY MEDICAL LOGISTICS.

1. If additional medical supplies are needed by any unit of the forces that cannot be procured in the immediate vicinity, requests will be made to the Area Evacuation Medical Officer Afloat.

2. Automatic Property Exchange.

a. Definition: Automatic property exchange is a system of medical resupply developed for land warfare to keep a constant flow forward of certain critical medical materiel.

b. Function: Theoretically, item for item will be exchanged as casualties are received. Actually, item for item will be exchanged PLUS any demand made by a forward echelon for such items as are available.

c. Composition: The initial concept was primarily to keep a constant flow forward of litters and blankets. (For each litter case evacuated to the rear, a blanket and litter was taken forward by the litter squad.)

In accordance with the latest concept, it is now tentatively composed of blankets, litters, splints, plasma, battle dressings and morphine syrettes.

(1) The Litter Unit:

To accomplish part of the program of automatic property exchange, the litter unit, composed of the following items may be utilized to facilitate handling in the early assault phase.

1 Pole litter.
1 Field blanket.
3-4 Battle dressings, large.
2-4 Pieces basswood splint material.

VII ARMY MEDICAL SERVICE.

1. General Information.

Army medical units perform normal functions as prescribed for land warfare, modified in the early stages of a landing by the substitution of Navy beach and ship medical facilities for the usual medical facilities established by division and army (field army). Army medical units, when feasible, assist Navy medical personnel.

The dead occurring in landing craft will be placed on the beach.

In principle, it is desired to evacuate only casualties of protracted convalescence expectancy (in conformity to the announced evacuation policy) to ships for later evacuation to base ports; and to retain and care for ashore, casualties of short convalescence expectancy. However, during the initial stages of a landing and before hospital facilities are available ashore, all ineffective casualties, will be evacuated to ships. Casualties so evacuated and of a convalescence expectancy less than that of the announced evacuation policy, will if practicable, be returned to shore before the departure of the ships to base ports.

2. Specific Information.

a. Regimental Combat Teams.

Since it is impractical to exercise division control of the medical service during the early phases of a landing operation, elements of the division medical battalion (collecting companies) will be temporarily attached to Regimental Combat Teams.

b. Medical Facilities.

The outline of medical facilities and operation ashore will be discussed under the headings of the Battalion Landing Team Phase, the Regimental Landing Team Phase, the Division Phase, and Landing Force Phase.

(1) Battalion Landing Team Phase.

(a) Medical Facilities.

Infantry Battalion Medical Section (Army)
Navy Medical Section, Shore Party.

(b) Operations.

The Battalion Medical Section (of the Infantry Battalion) consists of 2 medical officers and 32 enlisted men. This detachment provides the close medical support for the Infantry Battalion. The Company aid men of the detachment will go ashore with the Company Headquarters at H plus 2 or H plus 30 minutes. These men will tag the wounded, render what aid is possible with limited equipment and attempt to mark their positions to facilitate evacuation later.

The Aid Station Section of the Battalion Detachment goes ashore a little later, H plus 30 or 40 minutes. If possible, the Aid Station Section should land with at least one (1) ¼-ton truck loaded with station equipment. In addition, each man of the section will carry ashore certain items of medical supply. The Station Section will follow the Battalion inland and the length of time which the Station spends in the beach area will depend on the speed with which the infantry is advancing. Since the Aid Station Section includes only 12 litter bearers, no attempt will be made to evacuate casualties back to the beach. Casualties will be moved laterally to collecting points on a central axis of evacuation for later beachward movement.

The Navy Medical Section, Shore Party will land at approximately the same time as the Battalion Aid Station Section (H plus 30 to 40 minutes). This party consists of 1 medical officer and 8 hospital corpsmen (Navy). As soon as the party has landed and assembled (landing has probably been made in 2 or 3 boats), it will establish a Beach Evacuation Station on or near the beach. In this station the Navy Medical Section, Shore Party will receive casualties from the beach, administer aid to them and prepare them for seaward evacuation. The small number of personnel in the party makes their capacity for the actual collection and transporting of casualties very limited.

The securing of craft for seaward evacuation (except DUKWs) will be the responsibility of the Navy medical officer through the Navy Beachmaster.

In cases where inland progress of the infantry has been slow, it will be possible for the Battalion Aid Station Section (Army) and the Navy Medical Section, Shore Party to work together on the beach. This will greatly increase the available personnel and thereby increase the efficiency of the beach medical service.

When heavy beach casualties are anticipated, plans will be made to furnish additional personnel for litter bearer work on the beach. This personnel may either come from medical units of lower landing priorities or from non-medical personnel of other units (Engr., Sig., etc.). The source, number and landing time of such reinforcements will be command decisions made for a particular operation.

(2) Regimental Landing Team Phase.

(a) Medical facilities.

3 Navy Medical Sections, Shore Party (See Bn. Phase.)

3 Battalion Medical Sections (See Bn. Phase).

1 Regimental Headquarters Medical Section.

1 Collecting Company.

1 Company of a Medical Battalion Engineer Special Brigade (Far-shore Medical Company)

(b) Operations.

Sometime after the assault battalions have landed, the Regimental Headquarters will land. The Regimental Headquarters Medical Sections consisting of 1 medical officer, regimental surgeon, 2 dental officers and 30 enlisted men. This Section does not enter into the chain of evacuation from the front. Its personnel will be used to furnish first aid to the Regimental Headquarters and as replacements for losses in the Battalion Sections. During this stage the dental officers will function, not as dentists, but as supplementary medical officers.

The Collecting Company should come ashore during the Regimental Landing Team Phase, by H plus 2 if possible. The first elements of the Collecting Company to land will be the Litter Bearer Platoon under command of a Company officer. They will contact the Battalion Aid Stations and aid them in their evacuation of casualties. The next element to land will be the Collecting Station Platoon. The Station Platoon will proceed inland to a location dictated by the tactical situation at the time and establish a Collecting Station. This Station will receive all casualties from the front and render therein further first aid in preparation for seaward evacuation. In this way they will greatly lighten the burden of the Navy Medical Section, Shore Party. A limited number of vehicles will have been landed with the Collecting Station Platoon. As soon as these can be emptied they will be put into service transporting casualties.

The arrival of the Collecting Station marks the change from three separate battalion medical services to a single regimental medical service. At this time it may be useful to move all three Navy Beach Evacuation Stations to a central location in order to better coordinate evacuation with the Collecting Station. This will depend on whether the bulk of casualties is being incurred inland or on the beach.

The last element of the Collecting Company to land will be the Ambulance Section with 10 ambulances.

The Medical Company of the Engineer Special Brigade will have a landing priority soon after the Collecting Company, and it may land before the Collecting Company ambulances are landed. This company has 7 medical officers, 1 dental officer, and 118 enlisted men. It has 17 pieces of transportation including 10 ambulances (either standard $\frac{3}{4}$ ton ambulances or $\frac{1}{4}$ ton trucks with litter racks). This unit should land intact or nearly intact. The Company is equipped and trained to accomplish the following missions:

(1) Establish a station to classify and prepare casualties for evacuation. Gives definitive treatment to non-transportables. Surgical teams should be attached to the Company to aid in accomplishing the latter task.

(2) Receive casualties from the Collecting Station and any other Aid Stations ashore.

(3) Operate a medical supply dump.

(4) Aid in collection of beach casualties.

(5) Procure DUKWs for seaward evacuation.

(6) Load all craft, including DUKWs, used to transport casualties from shore-to-ship.

(7) Work with Navy Beach Medical Officers in accomplishing seaward evacuation in landing craft. Load and furnish transportation from the Station to the landing craft or beached LSTs.

If casualties are heavy, additional personnel will be required for attachment to the Medical Company. The source and numbers of such attachments will be command decisions for any particular operation.

(3) Division Phase.

(a) Medical facilities.

9 Navy Medical Sections, Shore Party.

9 Battalion Aid Stations.

3 Regimental Headquarters Medical Sections.

3 Collecting Companies.

1 Clearing Company (2 Clearing Platoons).

1 Medical Company, Engineer Special Brigade.

(Note: It will be noted that in all the discussion of all phases only the infantry has been considered. Other arms and services will land with their own attached medical troops. Those units not having medical detachments will procure aid at the nearest Aid Station.)

(b) Operations.

Regardless of any movements of the Army Medical units, the Navy Beach Evacuation Stations and the Medical Company of the Engineer Special Brigade remain in the beach area.

It will be noted that no reference to a Division Clearing Station was made in the discussion of the Regimental Landing Team Phase. In a landing operation the Medical Company of Engineer Special Brigade replaces the Division Clearing Station in the early phases. The Clearing Company should land in next priority after the Medical Company. Utilization of this unit will depend on the progress which has been made by the Infantry. If progress has been rapid and the beachhead has been extended to beyond 5 miles the Clearing Stations may be moved inland and established. On the other hand, if progress has been slow, the Clearing Stations can best be utilized by establishing them in the vicinity of the Medical Company to augment its personnel and holding capacity.

(4) Landing Force Phase.

This phase will begin with the landing of any medical units under control of a headquarters higher than a division.

(a) Any or all of the following Medical Facilities may become available during this phase.

Field Hospitals.
Evacuation Hospitals.
Ambulance Companies.
Collecting Companies.
Clearing Companies.
Supply Depots.
Auxiliary Surgical Teams.

(b) Operations.

It is not thought that a detailed discussion of operations during this phase is indicated in this paper. Suffice it to say that the above units will be available and will be employed as the tactical situation demands.

3. Army Supply.

Medical Detachments and Medical Units scheduled to take part in a landing operation will carry supplementary items required for the care of large numbers of casualties. Since the earlier landing units will go ashore with few or no vehicles, many of the supplies will arrive late. Each medical department enlisted man will carry ashore as much medical equipment and supplies as is considered practicable for the operation.

Army medical supply is based on a system of "Property exchange". This will require that the Navy be prepared to furnish litters, blankets, and splints to the Army on the beach area in exchange for similar articles evacuated to ships with evacuated casualties.

It is anticipated that the Navy will make all possible supplies available to the Navy Medical Section, Shore Party on the beach, and that this organization will, in turn, make supplies available to Army Medical Detachments in event of shortage or non-availability of normal army supplies.

In addition to excess supplies carried by units, the higher headquarters controlling the landing operations will load predetermined quantities of medical supplies aboard the assault convoy to be used in establishing medical supply dumps.

While each successive army medical installation occupying the beach area will make every attempt to assemble supplies and organize dumps, the first true dump will come into existence with the arrival of the Medical Company, Engineer Special Brigade. This company will continue to operate the supply dump until relieved by a supply section from higher headquarters.

VIII Summary of Responsibilities - Shore-to-shore phase.

1. Personnel casualties - Treatment and evacuation.

Army: Medical service to all personnel inland from the high-water-mark of far-shore landing beaches. Included in this is a joint medical service by Navy (Medical Section, Shore Party) and Army to all personnel in the beach area.

Army: The provision of sufficient motor transportation facilities for necessary lateral movement of casualties in the vicinity of beaches.

Army: The necessary liaison with the Navy required for the evacuation of casualties from the far-shore beaches.

Navy: Providing sufficient transportation facilities afloat to handle anticipated casualties.

Army: The provision of sufficient DUKWs (especially allocated to the Medical Department when the military situation permits), for the evacuation of casualties from the beach to ships.

Army: The transportation by DUKWs of casualties from shore-to-ship and the transportation by the most suitable motor vehicles available (in cases where motor transport may be used) to deliver casualties to beached craft.

Navy: The transportation of casualties from far-shore-to-ship (in cases where DUKWs cannot be used) and to augment DUKW evacuation with landing craft whenever necessary.

Army: The loading of all craft, including DUKWs, used to transport casualties from shore-to-ship; and the loading of motor vehicles when motor transportation is used to deliver casualties to beached ships or craft.

Navy: The unloading of DUKWs or craft used to transport casualties from the far-shore-to-ship; and the unloading of motor vehicles when casualties are delivered to beached craft by motor transportation.

Navy: The medical care and treatment of all casualties from the time they are loaded on a ship or craft until they are unloaded from such ship or craft.

Navy: The delivery of casualties to designated near-shore ports or hards at which special holding units will be provided by the Army. (In the event that urgent necessity requires the landing of casualties at other than such designated ports or hards, the Navy will be responsible for timely notification to the Army in order that casualties may be received and property exchanged without delay.)

Army: The necessary liaison with the Navy and the reception and unloading of casualties from all ships and craft at specified near-shore docks and hards.

Army: The near-shore handling, treatment and further evacuation of casualties. (Certain Navy medical installations in appropriate areas may be designated to receive casualties.)

Army: The establishment and maintenance of such holding medical units in the immediate vicinity of designated near-shore ports or hards as may be required for the reception of casualties evacuated by ships.

2. Medical Supplies.

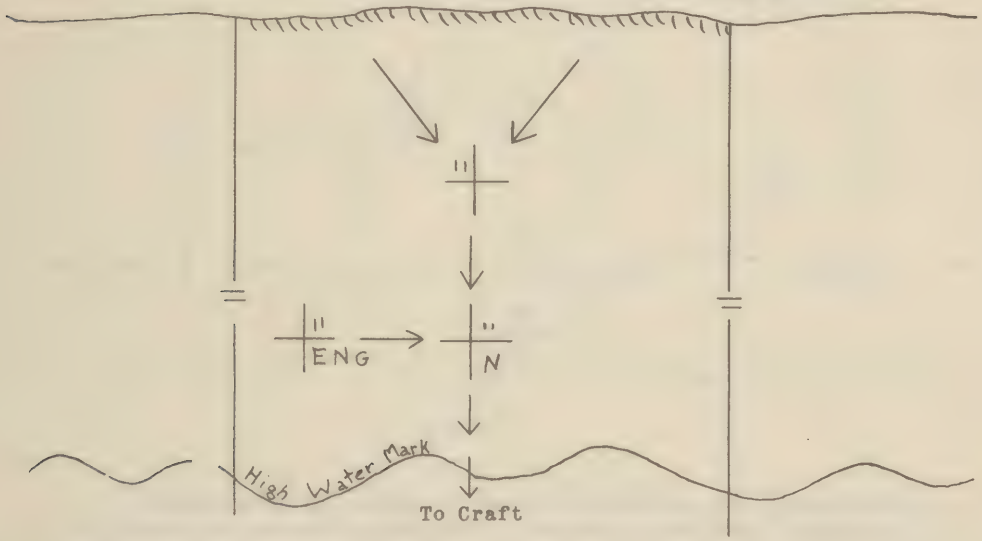
Navy: Providing casualty handling vessels with sufficient initial medical supplies, both for treatment of casualties carried as well as for automatic property exchange on far-shore landing beaches.

Army: Providing adequate amounts of additional medical supplies and equipment in the immediate vicinity of designated near-shore ports and hards as may be necessary to effect prompt property exchange with returning casualty carrying vessels and to meet emergency requirements arising in connection with shore-to-shore evacuation.

L E G E N D

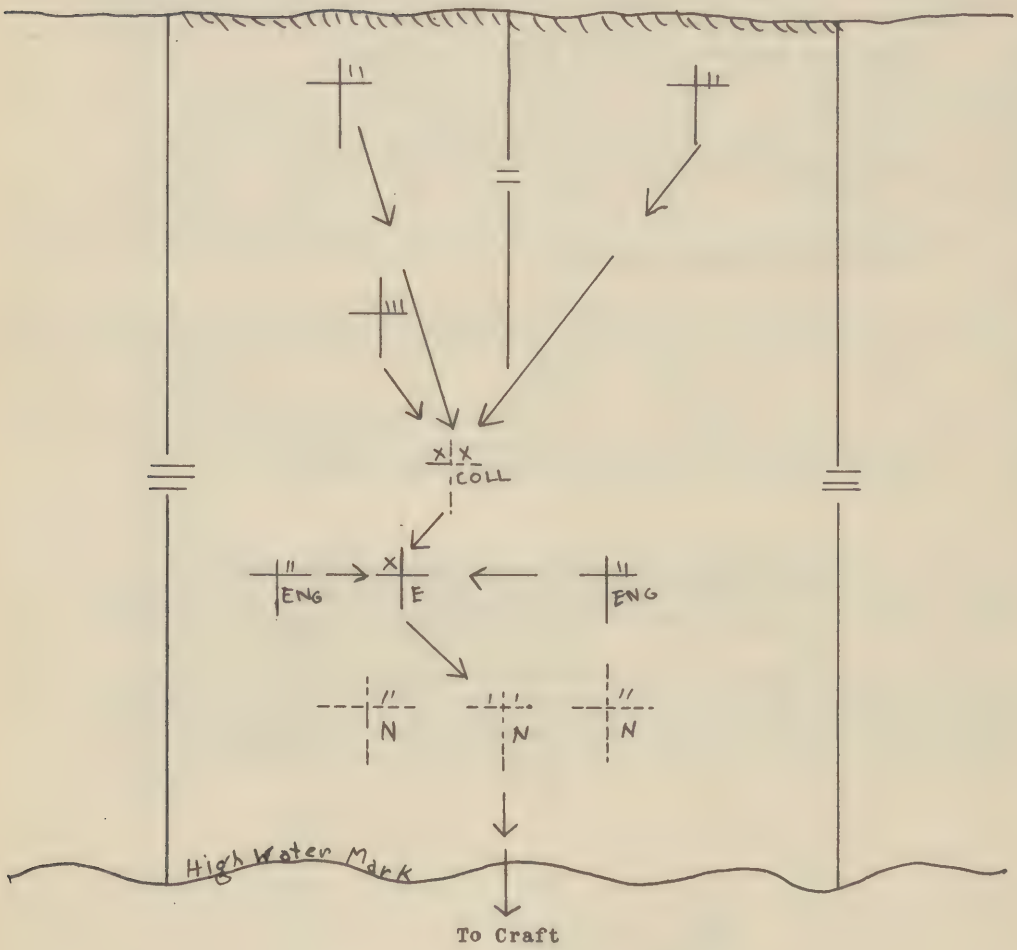
II	Battalion Aid Station, Infantry Battalion.
III	Regimental Aid Station, Infantry Regiment.
X X COLL.	Collecting Station, Division Medical Battalion.
X X CLR.	Clearing Station, Division Medical Battalion.
II ENG.	Aid Station, Engineer Battalion.
II N	Beach Evacuation Station (Navy).
X E	Medical Company, Engr. Spec. Brigade Medical Bn.

END OF BATTALION LANDING TEAM PHASE (DIAGRAMMATIC)



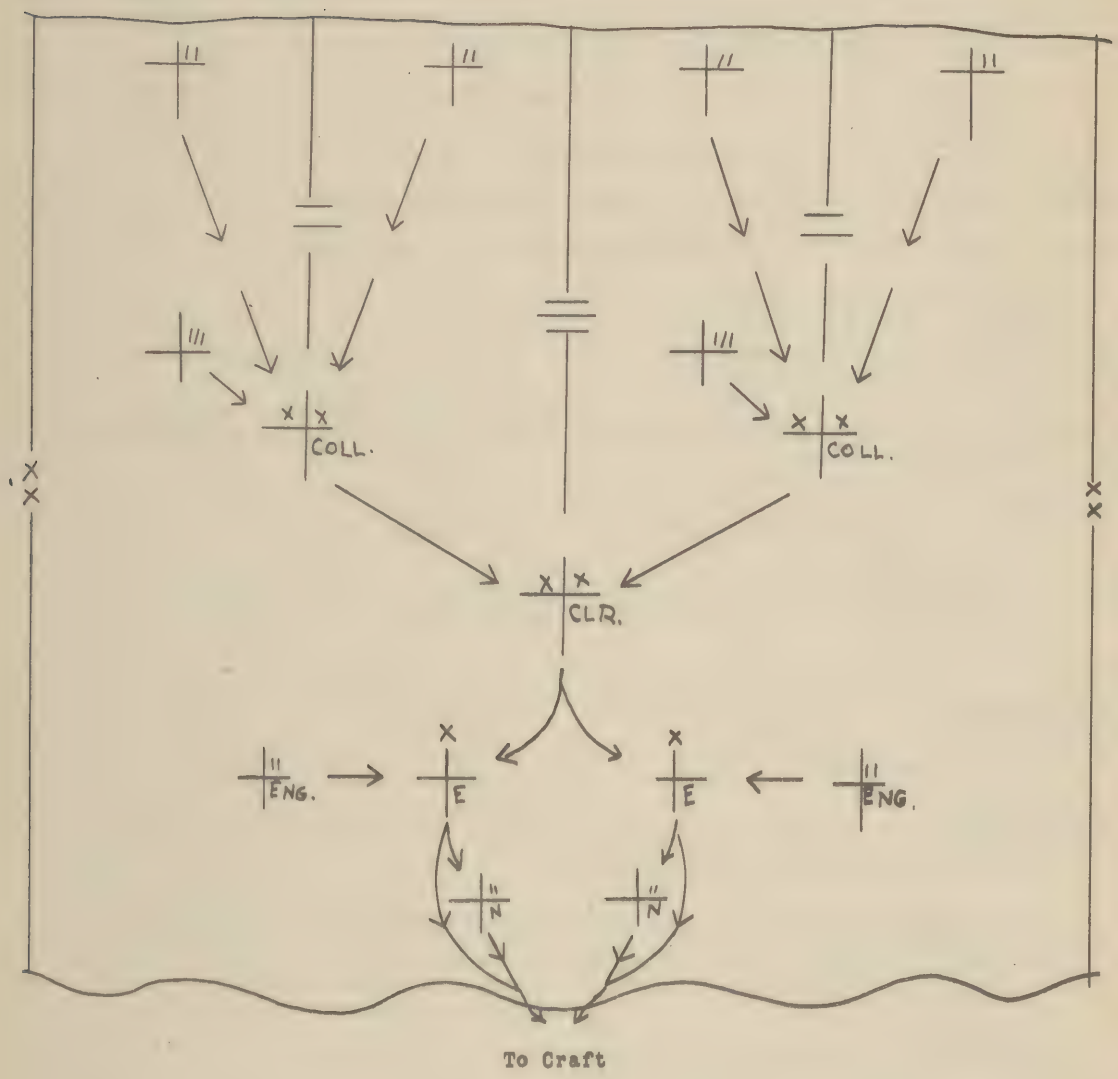
NOTE: Very little evacuation will be accomplished during this phase. All personnel will be trying to render first aid and, if possible, to move casualties to a central axis from which evacuation will be facilitated.

END OF REGIMENTAL LANDING TEAM PHASE (DIAGRAMMATIC), TWO BATTALIONS ABREAST AND ONE IN RESERVE



NOTE: The evacuation situation should improve greatly in this phase. It will be noted that two of the Naval Evacuation Stations are shown in broken lines. Their location will depend on the number of casualties occurring in the beach area. All three stations may or may not be consolidated behind the Medical Company.

DIVISION PHASE (DIAGRAMMATIC) TWO REGIMENTS ABREAST



NOTE: Evacuation should become well established during this phase. The number of stations in operation on the beach will depend on many factors, including road net, number of casualties occurring in beach area, etc.

Preparation and Interpretation.

The Medical Plan may be prepared in the accepted Naval War College form as follows:

Task Organization consists of a tabular enumeration of the task forces into which the command has been divided.

Paragraph 1 is the information paragraph. It contains such available information of the enemy and own forces as is necessary for subordinates to understand the situation and coordinate efficiently. It is subdivided into subparagraphs:

a. Information - which is based on established facts.

b. Assumptions - which is only a conjecture.

Paragraph 2 defines the task. It tells what is to be accomplished.

Paragraph 3 gives a detail of task assignments to the task groups.

Subparagraph (X) contains general information.

Paragraph 4 is the logistics paragraph. It sets forth the availability of service and supplies, to support the Medical Plan.

Paragraph 5, Axes of Signal Communication and Command sets the routing of communiques and establishes Command locations.

Sample Medical Plan.
(To be used as a guide in preparing Medical Plans for an operation.)

- -

SECRET - (Note: Medical Plan takes the same classification as the Landing Attack Plan.)

MEDICAL PLAN.

TASK ORGANIZATION.

Same as Landing Attack Plan No._____.

1. a. Information.

(1) See Landing Attack Plan No._____.

(2) Army Evacuation Policy. (State policy as set forth by the Army Landing Medical Plan for:

(a) Combat zone.

(b) Theater of operation.

b. Assumptions - Casualty estimates.

(1) Forces afloat - (% or number)

(2) Landing force - (% or number)

2. Task Force___will provide medical service for all its component parts in support of the Landing Attack Plan.

3. TASK GROUPS. (List in detail the task assignments of the task groups.)

a. Forces afloat.

b. Army

(X) EVACUATION PLAN - See Appendix 1 to this Annex.

4. MEDICAL LOGISTICS.

a. Forces Afloat. (List basic facts regarding medical supplies and add note that detailed information is contained in the Evacuation Plan.)

b. Army.

Army medical units will keep their supplies intact for use inland of the landing beaches.

Medical supplies of the Navy Beach Casualty Evacuation Station may be available to the Army medical units while the latter are in the vicinity of the beach.

5. AXES OF SIGNAL COMMUNICATION AND COMMAND.

a. See Communication Annex for transmission procedure.

b. List basic casualty reports.

c. List methods of requesting supplies.

d. List basic routing as applicable to the task groups involved in the operation.

e. Refer to detailed instructions listed in Evacuation Plan.

f. Command locations. (List the titles of evacuation medical officers and the ships in which they are located.)

IX CHEMICAL ANNEX

1. General Information

a. Landing troops on a hostile shore is one of the most difficult of military operations.

b. If defending forces add chemical weapons to their inherent defensive advantage, the task of the attacking forces becomes still more difficult.

c. The complexities of amphibious warfare enhance the value of the chemical weapon in the defense of a hostile shore.

d. The employment of chemicals in such a defensive tactic is to delay rather than to deny or neutralize. In operations in which timing is so important, the value of an effective delaying tactic is obvious.

e. If employed at the time of maximum confusion during the Battalion Landing Team Phase, the effect may be tantamount to "neutralizing" the attacking forces, unless they are well prepared by proper protective equipment and training, and possessed of good gas discipline and have appropriate leadership.

f. Even persistent tear gas (BBC) mixed with high explosive and fired from gun or mortar would induce grave disturbance to the landing troops, because of having to adjust masks and carry on.

g. The employment of choking gases (phosgene) or lethal gases (hydrogen cyanide) by aerial bomb or rocket projector presents a hazard difficult to evaluate, but certainly to be reckoned with seriously in the presence of an off-shore breeze. The rocket emplacements may well be intended for just such use in attempts to repel an invasion. They are particularly effective as area weapons for the dispersal of choking gas. Bombs charged with 50% high explosive and 50% blister gas have an effect similar to choking gas (short persistence, effects on respiratory system).

h. Liquid blister gas on the shore and the approaches and exits thereto is believed to present the most serious hazard from the standpoint of the avoidance of delay in the action. Such contamination can be effected by the usual means of aerial weapons, rocket projectors and land mines. Contamination will be directed more against areas than personnel. In the defense of a shore with chemicals, sites are previously selected for contamination because of the necessity, or military desirability, of the attacking forces traversing these areas. Shore parties must be cognizant of this possibility. The beaches themselves are likely to be contaminated with a thickened mustard which does not soak into the sand as ordinary mustard does. Oily splotches on the beach, or floating in the water, may contain blister gas liquid, particularly mustard.

i. White phosphorus may be used for its anti-personnel effect.

j. The degree of efficiency of casualty handling in the event of chemical warfare depends upon an extension of the implications of Paragraph I, sub-paragraph 3, of the basic communication.

k. The handling of chemical casualties, whether wounded or otherwise, will be governed by military considerations primarily. It is in this connection that such stress is laid on the necessity for preventing "interior contamination" on ships employed in evacuating casualties. To put a ship temporarily out of commission for purposes of decontamination, because contamination has spread to its interior by the collection of contaminated personnel in enclosed spaces, such as crew's quarters, ward room etc., is not to the military advantage. The hazards of blister gas vapor which may arise in enclosed spaces are real, as shown by experiences in France in 1917-1918, and on shipboard in a more recent experience. The avoidance of such interior contamination is therefore a paramount objective.

2. Definition of Principles of Seaward Evacuation of Casualties in Chemical Warfare.

a. Evacuation of blister gas contaminated casualties is the same as for other casualties, once "personal decontamination" has been carried out, clothing and gear removed, and the casualty placed in clean blankets.

b. CONTAMINATED CASUALTIES SHOULD NOT BE EVACUATED SEAWARD UNTIL THEY HAVE BEEN CARED FOR IN SUCH A MANNER AS TO PRESENT NO RISK OF CONTAMINATION OF THE SHIP'S INTERIOR.

c. The contaminated casualty, if transferred to a clean blanket after all clothing and gear have been removed, presents little if any risk to the ship. The hazard is further reduced if ointment has been employed in "personal decontamination" of exposed skin surfaces, or areas believed to have been otherwise exposed to the liquid agent.

d. If chemicals have been employed on the beach, or the area being served by the evacuating ships, there are two points in the chain of evacuation at which some measure of protection may be provided for the ship's interior. At both points, the maximum protection possible should be effected:

(1) If the evacuating services on the shore carry out paragraphs 2 and 3 above, this is at once accomplished.

(2) During the Battalion Landing Team Phase, if chemicals have been used, in addition to the above, all ships receiving casualties will have to effect a plan which presupposes that all casualties coming aboard are contaminated. IN THIS THE SHIP WILL ATTEMPT TO PROTECT ITSELF FROM "INTERIOR CONTAMINATION" DUE TO THE HASTY SEAWARD EVACUATION OF CONTAMINATED CASUALTIES DURING THIS EARLY PHASE. This plan would require that all casualties be held on an exposed deck until they could be changed to clean blankets and stretchers, and any clothing not previously removed disposed of. NOT UNTIL THIS HAS BEEN DONE would it be permitted for the casualty to be taken below deck or to enclosed quarters. The same would apply to walking casualties as to stretcher cases.

e. The Chemical Defense Bill of the ships, including LST, LCT, and LCI(L), will include a plan for protection against "interior contamination" to be employed in the event that chemical warfare is initiated and casualties are to be accepted on board ship for evacuation.

f. The Commanding Officer will be responsible for protecting the integrity of the ship against such "interior contamination", just as he is for maintaining its military effectiveness in other matters. Medical personnel will be required to cooperate to the fullest and in preparation of the Medical Plan, cognizance will be taken thereof.

g. The problem is aggravated because:

(1) While much is known of the hazards of mustard in enclosed spaces, the exact degree of risk and the limits of safety in the problem in hand are not known, but are believed by competent authorities to be potentially grave.

(2) It is difficult to identify contamination on clothing or gear. For practical purposes this is unreliable in respect to the problem in hand, and it is necessary to assume that all casualties coming aboard are contaminated once chemical warfare is initiated in the area, or the beach being served, and the evacuation facilities are those characteristic of the Battalion Landing Team Phase.

(3) The limitations of training personnel in the handling of a technically complex problem require that any plan be streamlined and possess as few loopholes as possible for human error.

h. Once the casualty evacuation is well organized and working smoothly, there will be no serious problems, as all contaminated casualties will be properly prepared before being evacuated seaward.

i. Topside areas or open ventilated areas can be regarded as "dirty" Areas A-B, and enclosed spaces can be regarded as "clean" Areas C-D-E, in accordance with the basic plan attacked. This plan is, in essence, that employed by all Forces in this theater, and can be modified to suit any situation. The principle is that all contaminated clothes, blankets and gear be removed in Areas A-B before casualty is permitted to go to Areas C-D-E.

j. The Chemical Defense Bill of the Ship will cover the problem of handling contaminated clothes, gear and blankets topside in the open. Generally the handling of such impedimenta on shipboard is carried out by those personnel trained for, and assigned to, "decontamination squad" duties. The ultimate disposition of this material will be effected through representatives of the Army Chemical Warfare Officer in the port to which evacuation is made. The removal and decontamination of such material is a function of the Army.

3. Specific

a. Tear gas and nose gas will rarely produce casualties requiring seaward evacuation.

b. White phosphorus burns require little special attention in this phase, but may require seaward evacuation.

c. Lung edema cases, or impending lung edema cases, should not be evacuated seawards.

d. If choking gas cases without lung edema are evacuated seaward, they present no special medical problems, except that oxygen will not be available for treatment in the ship phase of evacuating.

e. Blister gas contaminated casualties present serious problems and their handling requires most careful consideration:

(1) Interior contamination of evacuating ships must be avoided.

(2) The Chemical Defense Bill and organization of the chemical defense of the ship must envisage the possibility of "interior contamination" from evacuating casualties as well as by aerial attack.

(3) The medical personnel of evacuating ships will be trained to meet the problems associated with unexpected contaminated casualties on board in numbers, and in the handling of chemical warfare casualties.

(4) The handling of contaminated blankets, clothing and gear, which is held topside, will be specifically covered in such manner as to present least danger of vapor fumes being taken into the ship, and be conducted in such manner as to provide minimum hazard to those caring for this material, with due regard being paid to the importance of salvage through decontaminating procedures ashore.

(5) The only medical supplies required, in addition to the regular medical supplies, will be those necessary for "personal decontamination" (Ointment S461 or MIV, and Ointment BAL). Burn dressings, morphine syrettes and eye medicaments will be provided in evacuating ships in adequate amounts in the normal allowances. Oxygen will not be available.

(6) The matter of adequate numbers of blankets is a problem and plans must be made to obtain replacements from the near shore.

(7) In like manner, plans must be made for near shore replacement of the Ointment S461 and Ointment BAL.

(8) Personnel in evacuating craft and ships should employ personal protective equipment to the best advantage permitted by the situation existing at the time. Two tubes of Ointment S461 and two tubes of BAL will be carried by all naval personnel so employed.

(9) If available, US Army protective covers may to advantage be used by medical personnel as an impervious apron in the handling of contaminated casualties.

(10) If available, stretcher covers of bitumenized paper may be used in accordance with the usual ETO practice.

(11) The washing of contaminated wounded or other contaminated personnel to remove ointment after "personal decontamination" is completed may be done to advantage if the situation permits and soap and water are available. Shower baths are not suitable for contaminated wounded. Running water or a bucket of water and soap are adequate for contaminated wounded. Water should be lukewarm and not hot. This may be done in enclosed spaces (Areas C-D-E).

(12) Personnel handling contaminated casualties will be trained in protecting themselves properly while caring for such casualties.

(13) Decontamination of the interior of a ship is a difficult, time-and-labor-consuming procedure, and supplies for carrying this out are not likely to be available in adequate amounts. At best it is an unsatisfactory procedure. For this reason such emphasis is made of the importance of preventing "interior contamination".

(14) The tank deck of an LST may be used in dire emergency as an open, or ventilated "dirty" Area A-B, if the blowers are going and other proper precautions are taken. The tank deck will not be so used except in grave emergency.

(15) The open boats (LCVP and DUKWs) present little if any vapor hazard, but personnel may acquire burns from contact with surface contamination. It may be desirable to put masks on the casualties carried in the bottom tier of stretchers in seaward evacuation in these boats.

(16) LCI(L) present a peculiar hazard as to interior spaces. They have little topside area on which to hold contaminated casualties.

(17) LCT and LST, because of the large amount of open deck surface, are ideal for purposes of seaward evacuation of contaminated casualties. Crews' quarters and inner spaces must be protected. Hosing down is possible in all areas with material already on board. Live steam could be supplied on LST if it were required.

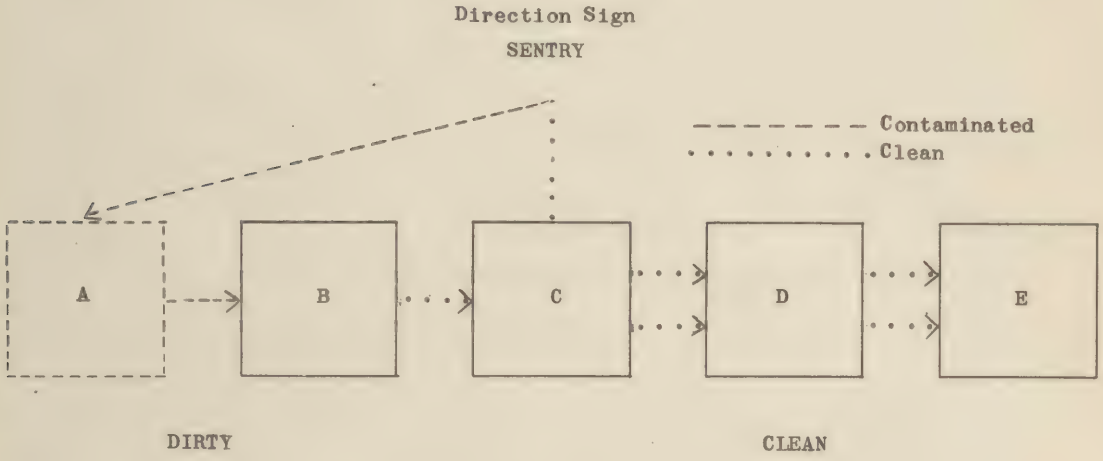
(18) If evacuated to APA in Battalion Landing Team Phase, the same precautions must be observed as on LST. Contaminated casualties must be kept topside until undressed and prepared to go below decks.

(19) While "Decontaminant Agent Non-Corrosive" may be available for care of anti-aircraft guns etc., it would hardly be available in such quantities as to be relied upon for gross contamination which may arise from the coming on board of many contaminated and not properly decontaminated casualties.

(20) It is imperative that the Commanding Officers of all casualty evacuating ships be familiar with the working arrangements which exist between the US Army and the US Navy in the ETO, and that the means of contacting the local representative of the CWS, US Army be known, so that if occasion demands, the Army can carry out its function on the return of the evacuating ship to the near shore.

(21) The concepts expressed in HQ ETOUSA Training Memorandum #42 and Operations Memorandum #14, obtain for all US Forces in the European Theater of Operations.

BASIC PLAN



Within the "dirty" area, the following will apply:

(a) Areas A, B and C need not be adjoining rooms or facilities.

(b) Personnel manning the "dirty" area must be trained in the decontamination of casualties and should be provided with impervious protective aprons, and if possible, protective gloves. The US Army protective cover can be employed to advantage.

(c) Free ventilation is required and, if possible, some cover overhead.

(d) The most suitable place for "dirty" Areas A-B is topside on an open deck.

Area A. Remove outer clothing, gear and blankets, and place in "dirty" dump. They must not go beyond this point. Change to clean blanket and stretcher. (This may be done in Area B instead.)

Area B. Situated just forward of entrance to interior. Underclothes are removed and placed in "dirty" dump. Ointment is applied to face, neck and hands if skin is not red. Also to any areas suspected of being contaminated. Use BAL for lewisite. Attendants masked.

Area C. Just inside entrance to interior spaces. Reception. Records.

Area D. Treatment. Additional medical aid when required.

Area E. Awaiting further evacuation.

APPENDIX E

TRAINING PAMPHLET

"MEDICAL DEPARTMENT ORGANIZATION AND DOCTRINE FOR LSTs"

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 8 (Part II, paragraph 16.4,ii)

MEDICAL DEPARTMENT ORGANIZATION AND DOCTRINE

FOR LSTs

13 May 1944
ENCLOSURE (A) TO CTF122 Serial: 0178

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UNITED STATES FLEET
TASK FORCE ONE TWO TWO

Serial: 0178

Navy 803
c/o Fleet Post Office
New York, N.Y.
13 May 1944

C O N F I D E N T I A L

From: Commander, Task Force ONE TWO TWO.
To : Distribution List.

Subject: Confidential Pamphlet, "Medical Department Organization and Doctrine for LSTs.

Enclosure: (A) Copy of subject pamphlet.

1. Subject pamphlet is forwarded for information to Commanding and Medical Officers of LSTs in this Force.

DISTRIBUTION LIST:

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A.D. STRUBLE
Chief of Staff

s/ R. T. CRAGG,
Flag Secretary.

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A. GENERAL INFORMATION.

1. ALL LSTs will be utilized for casualty handling. About 50% of these vessels are specially converted to facilitate this task. All LSTs including those converted, will be implemented with medical personnel, medical materiel and casualty handling equipment in order to efficiently function as casualty carriers.

2. Medical Personnel.

a. The minimal basic operational requirement per LST is:

2 Navy medical officers.
20 Navy hospital corpsmen.

b. For the early assault phase, the Navy medical personnel listed above will be augmented by:

1 Army traumatic surgeon.
2 Army enlisted operating technicians.

This personnel is assigned the following tasks:

(1) To perform such third echelon surgical treatment as is practicable. Primarily this consists of:

i. Life saving surgery.
ii. Early debridement of mangled, traumatic injuries.

(2) Surgical consultant to the ship's medical officer.

3. Medical Materiel.

a. For planning purposes, 200 casualties is considered the average maximum lift per LST. Medical materiel for casualty treatment is therefore supplied to each LST on this basis and consists of the following:

8 Units "A" - Emergency Surgical Dressings. Each Unit "A" is designed to provide for 25 casualties.

2 Units "B" - Medical Officer's Kit.

20 Units "C" - Hospital Corpsman's Kit.

8 Beach Bags - Each bag contains sufficient battle dressings, morphine syrettes, sulfonamide and splints to adequately supplement the Unit "A". (4 extra bags put on board for early resupply to the Navy Beach Battalions.)

1 Special Surgical Outfit.

(1) Miscellaneous.

Various additional items have been added to the basic supplies, the most important of which are:

Whole blood - 10 pints
Biologicals.
Plaster of Paris.
Dextrose.
Chemical warfare ointments.

b. Medical Resupply will be accomplished on the return trip of LSTs at the near shore hards where casualties are debarked. The Senior Navy Medical Officer of the ship will submit a list of supplies expended to the Navy medical representative at the near shore hard who will resupply the ship from sources ashore. The following items will be available:

Ointment, BAL.
Ointment, protective S-461.
Dextrose, 5% in N/saline. (1000cc container).
Bandage, plaster of Paris.
Dressings, burn.
Lamp, bulb, for 2 cell flashlight.
Lamp, bulb, for head-lamp.
Blanket, paper, waterproof.
Insecticide powder.
Units "A".
Beach Bags.
Serum, albumin (human).
Whole blood.

c. Army Exchange Unit of Medical Supplies.

(1) List of items in each Unit:

Blankets	- 16 bales of 20
Litters	- 100
Splint sets	- 4
Dressings	- 3 cases.
Plasma	- 8 boxes of 12 units.
Splint litter bars	- 24

(2) By using the above Exchange Unit, automatic property exchange with the far shore is accomplished as follows:

LSTs will have one Unit on board for the first trip.

LSTs will, upon return to the near shore, receive an additional Unit for far shore delivery until the desired number have been transported.

The Army is responsible for reloading LSTs with these UNITS on the near shore and unloading them from LSTs on the far shore.

The LST medical officers, though only concerned with the transportation of these UNITS, must facilitate the resupply at the near shore and unloading on the far shore.

d. Emergency Issues.

Requests for emergency issue may come from ANY SOURCE by ANY MEANS of communication. These requests WILL BE HONORED in as far as is expedient.

In anticipation of early emergency issues to beach medical activities, the following extra medical supplies are provided each LST for the first trip:

12 units of plasma.
4 beach bags.
20 paper blankets or canvas combat covers.
20 litter units.

4. Professional Care of Casualties Being Evacuated.

a. Surgical Treatment. In as far as possible, casualties whose lives will be jeopardized unless early surgery is performed, preferably within 6 hours from the time of wounding, will be held on the far shore for surgical treatment. Such casualties should include "non-transportables" i.e., wounds of the abdomen, serious wounds of the chest, wounds associated with shock which do not respond to therapy, maxillofacial wounds associated with mechanical difficulty in breathing. See definition of "transportables" and "non-transportables" pages 5.

(1) Routine Surgical Treatment. In general, treatment on board LSTs should be similar to that of an Army Division Clearing Station. It should consist largely of the following:

Control of hemorrhage.
Treatment of shock by plasma and whole blood transfusions.
Proper immobilization of fractures with splints or plaster of Paris bandages.
Elimination of pain by codeine, morphine or by administration of anesthetic; ether, chloroform, pentothal or procaine.
Combat infections by sulfonamides, penicillin, tetanus toxoid and gas antitoxin.
Maintenance of airway (tracheotomy if indicated).

Included in the above is the care of casualties that may take place among personnel and patients during voyage.

(2) Definitive Surgical Treatment. The decision to perform major definitive surgery should be governed by the type of wound; estimated time interval from wounding until near shore definitive treatment is available; the professional qualifications of the medical personnel; surgical equipment and supplies; and finally, the the volume of casualties being cared for.

Definitive surgical treatment will only be considered as a life saving measure. CAREFUL CONSIDERATION IN FAVOR OF CONSERVATISM should be given to the possible time interval before definitive treatment can be provided at the near shore. Definitive surgery may be indicated in the following:

i. Chest and abdominal wounds.

ii. Wounds susceptible to gas-gangrene requiring debridement such as mangled, traumatic injuries of the buttocks and compound fractures of the extremities with damage to the main blood supply.

b. Sorting of Casualties (Triage). Sorting is necessary in the proper handling and treatment of casualties. If this is done before arrival at the near shore hards, pertinent information is thus available to the medical units ashore receiving the evacuated. Patients should be divided into two main catagories, namely:

i. Ambulatory.
ii. Stretcher - (Transportable. (Non-transportable.

(1) Ambulatory - walking cases.

(2) Stretcher.

(a) Transportable. Those casualties who, in the opinion of the ship's medical officer at the time of debarkation, can safely tolerate OVERLAND TRANSPORTATION before requiring medical attention. (Include dead.)

(b) Non-transportable. Those casualties requiring IMMEDIATE medical/surgical attention upon debarking i.e., resuscitation or early surgical intervention.

c. Tagging of Casualties.

(1) An Army "Emergency Medical Tag" (E.M.T.) will, in so far as possible, be used on on ALL casualties.

Supplemental records on casualties requiring definitive surgery will be kept on the back of the EMT.

(2) Non-transportables will, in addition to the Army E.M.T., be tagged with the NAVY DIAGNOSIS TAG, RED BORDERS INTACT. When used for this purpose, this tag will only contain:

i. Casualty case number - corresponding to that in the Running Record of Battle Casualties.

ii. A brief indication of the type of wound or condition i.e., "HEAD", "CHEST", "ABDOMEN", etc.

d. Organization for Definitive Surgery. The medical supplies and equipment should be evaluated and distributed to the dressing stations and operating room. The instruments necessary for doing definitive surgery which may include abdominal exploration - should be assembled. A system of sterilizing instruments and transferring sterile instruments and supplies for definitive surgery should be organized. The supply of sterile drapes should be evaluated - see instructions concerning the use of rubberized sheeting, below. Provisions should be made for the administration of whole blood or plasma at the time definitive treatment is carried out.

(1) Instructions for Use of Rubberized Sheeting.

i. A nominal amount of this rubberized cloth (Batiste) is supplied each LST to be utilized in place of sterile cloth drapes.

ii. This material can be cut in desired lengths and sterilized by washing with soap and water and boiling for 15 minutes. This material can be boiled repeatedly without noticeable deterioration. To facilitate the removal of the rubberized drape from the sterilizer, it is advisable to catch the 4 corners in a hemostat, in order that it can be spread over the field without contamination.

iii. A 2 to 3 yard length of this sheeting may be cut and made into a laparotomy sheet. A 6" opening is cut in the mid portion of the sheet and both ends reinforced with a silk ligature or safety pin to prevent tearing. Small sheets may be utilized to cover instrument trays, making it unnecessary to boil these large containers.

iv. Avoid the application of alcohol, or alcohol containing antiseptics, to the surface of the sheet, as permanent staining and discoloration will result.

B. MEDICAL DEPARTMENT ADMINISTRATION.

1. The surgeon's division will consist of all medical personnel, Army and Navy, attached or assigned to the ship.

2. The Senior Navy Medical Officer attached or assigned to the ship is the Department Head - Ship's Medical Department.

a. Duties.

i. He is the advisor to the Commanding Officer on all medical matters.

ii. He has charge of all medical materiel and stores aboard and shall be in direct charge of the treatment and care of the sick and wounded.

iii. He is responsible for the development of the medical organization of his ship and for keeping the same up to date.

iv. He is responsible for the coordination and cooperation of his medical department with the medical plans of higher authority.

v. He shall advise the commanding officer in all matters of hygiene and sanitation of the ship and will prepare a ship's Sanitary Bill.

vi. He shall make, or have made by an officer of the medical department, frequent inspections of the ship's living, messing and commissary spaces.

vii. He shall concern himself with all actions, practices and conditions which effect the sanitary condition of the ship and the health of the crew.

3. Ship's Bills.

a. Battle Bill. "The crew of each ship shall be organized and assigned to battle stations by means of the battle bill, with the preparation of which the Executive Officer is charged under direction of the captain".

b. Watch and Station Bill. "Based on the battle bill, the executive officer shall prepare watch and station bills for emergencies anticipated in Naval vessels, and "upon" receiving the approval of the captain, shall have these bills framed and hung in conspicuous places".

c. Division Station Bill. "The division officers shall thereupon prepare complete and detailed station bills for the crews and members of their divisions for performing all details of ship's duty, and shall submit these for the approval of the executive officer".

See following pages for a sample Division Watch, Quarter and Station Bill.

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SAMPLE DIVISION WATCH, QUARTER AND STATION BILL

NAME	RANK OR RATE	FIRE	COL-LISION	FIRE AND RESCUE	ABANDON SHIP (A) Rapid	ABANDON SHIP (B) Slow	MAN OVERBOARD	GENERAL QUARTERS CONDITION I	GENERAL QUARTERS CONDITION II	GENERAL QUARTERS CONDITION III	RECEIVING CASUALTIES
		(5)	(5)	(5)	(2) (5)	(2) (5)	(5)	(5)	(3) (5)	(4) (5)	
	S.M.O.	MBDS	MBDS	MBDS	boat	boat	MBDS	ABDS	ABDS	ABDS	MBDS
	J.M.O.	FBDS (1)	FBDS (1)	FBDS (1)	boat	boat	Meet bt.	FBDS	MBDS	MBDS	TANK DK.
	*USA Surg	MBDS	MBDS	MBDS	boat	boat	MBDS	MBDS	MBDS	MBDS	MBDS
	CPhM				raft	raft		MBDS	MBDS	MBDS	Gen. Sup.
	PhM				raft	raft		MBDS	MBDS	MBDS	Op. Area
	PhM				raft	raft		MBDS	MBDS	MBDS	Litter #1
	H.A.				raft	raft		MBDS	MBDS	MBDS	Litter #1
	H.A.				raft (7)	raft (7)		MBDS	MBDS	MBDS	Recorder
	PhM	sick bay	sick bay	sick bay	raft	raft	sick bay	sick bay	sick bay	sick bay	sick bay
	PhM		scene (6)		raft	raft		sick bay	sick bay	MBDS	MBDS
	PhM	scene (6)			raft	raft		sick bay	sick bay	sick bay	MBDS
	H.A.			scene (6)	raft	raft		sick bay	MBDS	MBDS	Litter #2
	H.A.	sick bay	sick bay	sick bay	raft	raft	sick bay	sick bay	sick bay	sick bay	Litter #2
	PhM				raft	raft		ABDS	ABDS	ABDS	ABDS
	PhM				raft	raft	with bt.	ABDS	MBDS	MBDS	top-side
	PhM	scene (6)			raft	raft		ABDS	ABDS	ABDS	Galley ldr.
	H.A.		scene (6)		raft	raft		ABDS	ABDS	ABDS	Litter #3
	H.A.				raft	raft	area (6)	ABDS	ABDS	MBDS	Litter #3
	PhM	FBDS	FBDS	FBDS	raft	raft		FBDS	FBDS	FBDS	Amb.Tr.Area
	PhM			scene (6)	raft	raft		FBDS	FBDS	FBDS	Top-side.
	PhM				raft	raft	with bt.	FBDS	MBDS	MBDS	Galley ldr.
	H.A.				raft	raft	area (6)	FBDS	FBDS	MBDS	Litter #4
	H.A.	FBDS	FBDS	FBDS	raft	raft		FBDS	FBDS	FBDS	Litter #4
	*USA	MBDS	MBDS	ABDS	raft	raft	ABDS	MBDS	MBDS	MBDS	MBDS
	*USA	MBDS	MBDS	ABDS	raft	raft	ABDS	MBDS	MBDS	MBDS	MBDS

*When on board.

MEN NOT ASSIGNED SPECIFIC STATIONS WILL FALL-IN AT QUARTERS

LEGEND:

(1) J.M.O. remains with and treating casualties until required at the Forward Battle Dressing Station.
(2) All corpsmen assist in evacuating patients to their abandon ship stations.
(3) Corpsmen maintain watches at BDSs and sick bay and reduce personnel to watch and watch.
(4) Maintain communication watches and carry on routine care of patients.
(5) Provide hospital corps pouch.
(6) Provide litter and blankets.
(7) Provide medical records.

MBDS - Main Battle Dressing Station:-Operating Platform and crew's quarters.
FBDS - Forward Battle Dressing Station:-Bosn's locker, port.
ABDS - After Battle Dressing Station:-Officer's wardroom.

4. Division Officer.

a. When more than one Navy medical officer is attached to a ship, the senior assistant may be detailed by the senior medical officer as the division officer.

b. The division officer will ordinarily be responsible, subject to the approval of the senior medical officer, for the following duties:

(1) Medical Department Duties.

i. Care of the sick.

ii. Records, reports and returns.

iii. Medical spaces.

iv. Medical department personnel.

v. Charged with the training of the Hospital Corps personnel and first aid training for the ship's complement.

(2) Military Duties.

i. Assume such divisional duties as assigned him by the senior medical officer.

ii. Report division at quarters.

iii. Prepare watch, quarter and station bill based on the ship's bill.

C. MEDICAL DEPARTMENT PREPARATION FOR BATTLE.

1. Fundamental Principles. Consistent with the increased importance of damage control in the fleet two fundamental principles are stated:

i. The watertight integrity of the ship, regardless of wounded, must be preserved.

ii. Firepower, as delivered by batteries of the ship, regardless of wounded, must be maintained.

2. To render maximum aid for wounded consistent with these principles; medical department materiel and personnel must be well dispersed. When practicable, during action, personnel should remain in unexposed areas. Absolute discipline must be maintained at all battle dressing stations.

3. Training.

a. Non-Medical Personnel. Commanding officers will direct their medical officers to supervise and administer teaching of first aid to ALL personnel, making the latter available for this training.

Subjects - the following first aid subjects will be included:

Patient handling - methods of handling, lifting and transporting patients.

Treatment of shock - should include the technique of administration of morphine from a syrette.

Control of hemorrhage.

First aid treatment of the injured. This should include handling of fracture cases, bandaging and applying battle dressings, treatment of burns, etc.

Resuscitation of the apparently drowned.

b. Medical Personnel. The ship's medical officer will promptly effect and thereafter

maintain, a state of efficiency in first aid and casualty handling.

c. Casualty Drills. Casualty handling in LSTs is accomplished under two conditions, namely:

i. When performing normal combat duties.

ii. When functioning as a casualty carrier.

(1) When Performing Normal Combat Duties. Casualty drills under this condition should be based on a progressive training schedule, the final objective being for battle conditions. Thus, the gradation should be from handling an occasional accident case, through simulated battle conditions with and without troops and finally, as a part of a landing force operation. By assessing casualties, a complete dress rehearsal is possible. Thus, the continuity of medical care can be observed. If these drills are held concurrently with damage control drills and landing operations. It is possible to test the speed and efficiency with which the Hospital Corpsmen and non-medical personnel can handle the situation.

Casualty Drill Under Simulated Gas Attack: An occasional casualty drill should be held in which a simulated gas attack occurs. Gas masks should be worn by all hands during this drill. Simultaneous materiel and personnel decontamination as well as personnel treatment will thus be practiced.

(2) When Functioning as a Casualty Carrier. This type of casualty drill may be held in conjunction with (1) above. The main purpose of this drill is to set up the ship for reception and handling of casualties.

D. CASUALTY HANDLING IN LSTs.

1. General Information.

a. LSTs are primarily designed as a LANDING SHIP, TANK, for Amphibious Operations.

b. ALL LSTs will be prepared for the reception, care and handling of casualties. Further, they will provide for the major lift of casualties evacuated seaward on their return trips from overseas landing beaches.

c. To effect casualty handling, the following alterations and changes have been made:

(1) Casualty Converted LSTs.

(a) Approximately 50% of the LSTs have had definite alterations made in them to facilitate casualty handling.

(b) In addition, certain casualty handling gear has been provided by the ship and some minor alterations effected.

(2) Non-casualty converted LSTs have (b) above.

(3) ALL LSTs will be implemented with medical personnel and materiel and, with conversions, alterations and special casualty handling equipment, will be prepared to accomplish casualty handling efficiently.

2. Specific Information.

a. Shore to Ship Evacuation.

(1) Any boat used in amphibious operations, including DUKWs, may be utilized for evacuating casualties from the beach.

(2) All landing boats carry sufficient first aid material to effect emergency first aid.

(3) Boat crews of landing boats will be responsible for casualty handling and emergency first aid in their boats.

(4) Ineffectives resulting from casualties occurring in the boats during any phase will be retained in the boats for seaward evacuation when practicable.

(5) Remains of dead occurring in landing craft or retrieved from whatever source will be taken ashore for burial.

b. Litter Capacity of Landing Craft.

LCVP - 15
LCM - 10
LCT - 50
DUKW - 10

c. Loading Plans. The loading plans must be flexible and provisions made for the following:

(1) To permit loading of casualties while the LST is loaded or unloading.

(2) To permit loading of casualties under adverse conditions of weather, etc.

(3) To expedite casualty loading.

d. Loading Methods.

(1) Casualties may be loaded by any or all of the following methods:

(a) By DUKWs - through the ramp or over ship's side.

(b) By Landing boats, craft, etc. - hoisting boats in davits; hoisting casualties from boats alongside; marrying ramps.

(c) By Motor Vehicles - when beached, casualties may be brought aboard through the ramp in any type of motor vehicle.

(d) By Rhino Ferry - casualties loaded through the ramp.

(2) Details of Loading (suggestions). Small craft will tie alongside the LST as indicated by the commanding officer of the ship. Bunk straps will be lowered to the small craft and used to secure the patient to the litter. This will be done by the crew of the small craft. The sling will be lowered from the LST to the craft alongside and its crew will attach it to the litter by sliding the handles of the litter through the loops of the sling. There will be two guide lines, one attached to each 2 by 4 beam at the loop. These lines, handled by a crewman in the small craft, steady the litter during its ascent and hold it parallel to the freeboard of the LST, until the litter reaches the ship's deck level.

One after davit on each side of the LST will be rigged to a jigger (double block above and single block below) secured to the lizard or strengthening beam between the arms of the davits. The davits are lowered to the point, and left in that position, at which the sling will be in the middle of an LCVP tied alongside. This position will be satisfactory for all craft. The sling, preferably with the 2 by 4 beam attached, and the bunk straps are lowered into the small craft and handled as described above. It is expected that the commanding officer of the LST will be able to assign sufficient of his crewmen to handle all lines of the casualty handling gear. Two men are able to hoist the litter by handling the line, bringing him to deck level; a third will man the guide line attached to the iron triangle of the sling, slight tension on this line steadying the ascending litter and further tension at the deck level pulling the litter within reach of the corpsmen on deck.

There are 5 main routes by which casualties may be taken to the crew's quarters and tank deck:

i. The galley passageway and ladder: This represents the sole gangway clear at all times for transporting casualties below. By removal of the demountable rails at the top and side of the ladder, casualties are taken down this

ladder into the crew's quarters and to the tank deck.

ii. The cargo hatch: This gangway is the easiest and fastest method of transporting casualties to the tank deck. This gangway may be used only after the tank deck is nearly unloaded and the after third of the cargo hatch available.

iii. The ammunition hatch gangway on the fantail: This represents a fast and easy method of handling casualties to the crew's quarters. It cannot be used at the time ammunition is being passed.

iv. The forward elevator: Use of the elevator is usually precluded because of its position far forward in the ship and because of its continual use in unloading the ship.

v. The forward booby hatches: By use of the booby hatches, casualties may be taken to the troop compartment. This method is of limited use because of the distance involved and the difficulty in maintaining a clear gangway on the main deck to it from the after casualty hoisting davits.

Casualties may be taken into the troop compartments from the crew's quarters only by special procedures. The Stokes litter will clear the port hatches but the pole litters will not. On the starboard side, neither conveyance will clear the gangways and the casualty must be carried manually to the compartments.

e. Casualty Berthing Areas.

(1) After Battle Dressing Station: This area will care for a half dozen litter cases or may be used as an ambulatory treatment area as well as an emergency operating area.

(2) Main Battle Dressing Station: The operating platform, when available, and the crew's quarters will care for thirty-five to forty litter cases. It is necessary to examine this area carefully in order to utilize all available space. Until the tank deck is available, this is the sole large area in which any number of cases may be placed quickly. To remove casualties to the port troop's compartments, using the Stokes litter, necessitates extra handling and extra time.

(3) Ambulatory Treatment Area: The troop messing compartments forward of the sick bay on the starboard side represent an excellent area for treating ambulatory casualties with water, head, and bunking facilities close at hand.

(4) Troop Compartments: These areas may be used, gaining entrance by means listed above. While these areas are ideal in many ways, the difficulties of gaining entrance often preclude their use. Some ships have a hatch leading from the tank deck into the troop messing compartment forward of the sick bay. The messing compartment then becomes an excellent operating theater for all cases.

(5) Tank Deck Area: This area, when available, is the main theater for berthing patients.

LSTs of the converted type, with 3 tiers of litter brackets, will carry approximately 144 casualties. The two lower brackets of each tier being best suited for shock position and administering of plasma. Litters are lashed to the brackets.

The tank deck itself will hold approximately 150 to 200 casualties by arranging the litters in rows of 10 athwartships and 15 down the deck. Litters may be secured to lugs at the bottom of the bulkheads and middle of the tank deck. Access to all patients must be planned in the arrangement of aisles.

f. Casualty Treatment Areas. The following areas should be appropriately stocked and used as intersupply stations. This will give a satisfactory dispersion of medical supplies and provide easy accessibility.

(1) Main Battle Dressing Station (MBDS). The operating platform normally is the MBDS. The sterilizer, operating table, operating light and shelves may be arranged on the platform. Stands, cabinets and shelves may be rigged to complete this area for appropriate surgery. This platform cannot be used until the tank deck has been at least two-thirds unloaded of vehicles.

(2) Alternate Main Battle Dressing Station (AMBDS). The crew's quarters serve as the AMBDS. This area is fitted out with the removable light, stand, cabinet and shelves as necessary, to be used during the interval at which the tank deck is being unloaded. As this station is less adaptable to surgery than the platform and, as it is adjacent to that area, the AMBDS will be used only until the MBDS becomes available. The shift to the MBDS under these conditions will be quickly and easily accomplished.

(3) After Battle Dressing Station (ABDS). The officer's wardroom is the ABDS. This area may be prepared as an emergency operating area, utilizing the tables and cabinets present.

(4) Sick Bay (SB). The ship's sick bay is used as a supply station.

(5) Compartments forward of the sick bay may be designated as ambulatory treatment area.

(6) The forward compartments on the starboard side may be utilized for treating gas casualties. The decontamination locker should be placed on the main deck.

3. Synopsis of Casualty Handling.

Absolute discipline - no solicitous friends to remain with patient after arrival at the dressing station.

Avoid doing too much.

Skilled first aid, leaving the rest to nature, promotes the maximum number of recoveries.

Place on stretcher if possible at scene of accident and administer immediate first aid.

Transport casualties during the lull.

Morphine syrettes should be well dispersed and available for administration by aid men and others trained in their use.

Upon arrival at receiving area:

Doctor and assistant make preliminary examination and tag patient (if untagged), noting relevant data on tag and Running Record of Battle Casualties.

Treat shock - administer morphine sulfate if indicated. Provide fluids - per orum; parenterally. Provide external heat - hot water bottles or blankets.

No extensive treatment given until reacted from shock. Cases offering bad prognosis, except for treating shock, are treated last.

Repeat rounds at definite intervals.

Watch for anuria.

The following should be rigged and checked:

All casualty lifting gear:

Rigging and davit slugs.

Rig the cargo hatch for casualty handling.

Remove such guard rails as necessary.

Rig the tank deck for casualties.

Rig for moving small craft alongside after checking the casualty lifting gear and setting up the ship for reception and treatment of casualties.

Personnel should practice handling simulated casualties thus testing out all facilities.

If the aforementioned drills are held with the thoroughness desired, there should be no lost motion or confusion during actual operations. Some of the following problems will thus be solved.

Is the operating table satisfactory for the types of surgery to be performed and, can the table and patient be properly secured?

Are the arrangements for instrument sterilization satisfactory?

What about anesthetics?

Are the arrangements compiled for the administration of whole blood; plasma; glucose?

What about your emergency water supply?

Are plans made to set up Lyster bags conveniently?

Are your emergency lighting facilities (including head lamps) available?

What about emergency toilet facilities?

Are your medical supplies sufficiently dispersed so that one hit will only destroy a small portion of them?

Do you know where to find the supplies you may need?

What about your arrangements for shock; for hot drinks; for messing?

4. The Medical Annex to the Operation Order. It is IMPERATIVE that the medical officer have access to the medical annex of the operation order in sufficient time to correlate data; anticipate his role in the operation; break out references; and prepare his department to handle casualties that may occur on board as well as those evacuated from the sea or shore.

APPENDIX F

TRAINING PAMPHLET

"MEDICAL MATERIEL IN LSTs"

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 8 (PART II, paragraph 16.4,ii)

MEDICAL MATERIEL IN

LSTs

20 May 1944

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CTF/122/P11-1(75)

Serial: 0196

UNITED STATES FLEET
TASK FORCE ONE TWO TWO

Navy 803
c/o Fleet Post Office
New York, N.Y.
26 May 1944

C O N F I D E N T I A L

From: Commander Task Force ONE TWO TWO.
To: All LSTs of Task Force ONE TWO TWO.

Subject: Confidential pamphlet "Medical Materiel in LSTs" forwarding of.

Enclosure: (A) Three (3) copies of subject pamphlet.

1. Subject pamphlet is forwarded for information to Commanding and Medical officers in LSTs of this Force.

A. D. STRUBLE,
Chief of Staff.

Copy to:
BUMED (5)
ComNavEu (5)
CG, ETOUSA (5)
CG, FUSAG (5)
CG, FUSA (5)
CG, TUSA (5)
Com11thPhib (5)
ComGroup 2, 11thPhib (5)
ComLanCrab11thPhib (5)

s/ R. T. CRAGG
Flag Secretary.

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A. GENERAL INFORMATION.

1. All LSTs will be used for casualty handling. About 50% of these vessels are specially converted to facilitate this task. All LSTs including those converted, will be implemented with medical personnel, medical materiel and casualty handling equipment in order to efficiently function as casualty carriers.

2. References.

a. Pamphlet - "Medical Department Organization and Doctrine for LSTs".

b. Lecture - "Plans for Medical Supplies and Equipment for LSTs Converted or Implemented for Casualty Carrying". (Training course for medical personnel, USN AATSB, Fowey, Cornwall.)

B. INDEX TO SUPPLIES AND EQUIPMENT.

Operational medical supplies and equipment are divided into two general groups namely:

1. Group One (Navy).

a. Ships commissioning allowance. See pages 1 and 2.

b. Temporary additions to commissioning allowance. See page 2.

c. Casualty treatment resupply materiel. See page 5.

d. Individual equipment for:

i. Medical officers. See page 7.
ii. Hospital Corpsmen. See page 7.

2. Group Two (Army).

a. Army Exchange Unit of medical supplies. See page 7.

C. DETAIL OF SUPPLIES AND EQUIPMENT.

1. Group One (Navy).

a. Ship's Commissioning Allowance.

The ship's commissioning allowance list shows approximately 336 items. This list was forwarded to each LST with a directive from ComLanCrab 11th Phib that an inventory be made and requisitions submitted to U.S. Medical Storehouse No. 12 to fill deficiencies in expendable items.

Further supplies and equipment furnished to LST under other subheads of this group is based on the assumption that not less than the authorized commissioning allowance is on board.

b. Temporary additions to commissioning allowance.

i. Items in this group are considered as temporary additions to the "Ship's Commissioning Allowance" and are issued to LSTs to supplement that allowance for treatment of casualties carried. This material will be accounted for in the same manner as the regular commissioning allowance. It may be subject to recall after an operation if no longer considered necessary for the LSTs' mission.

ii. These items consist chiefly of non-expendable property and certain small items of supplies which, because of their small size or small amount required, are not included in the material to be resupplied at the near shore hards. (Examples: headlights, special medical officer's surgical outfit, etc.) If, during an operation, it is noted that an unusual drain is being placed on the

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stock of any expendable material in this group, a note to that effect should be included in the resupply list and an attempt will be made to furnish more when the ship again returns to the hard.

iii. Items in this group will be furnished to each LST by requisitions prepared for them at headquarters. Immediately upon receipt of a shipment, the supplies must be unpacked, checked and inspected. Receipts should be accomplished promptly in accordance with instructions on the requisition or accompanying letter.

iv. The following is an itemized list of the material in the subgroup:

NAVY SUPPLY TABLE ITEMS

Stock No.	*Symbol	Item	Unit	Allowance
1-110	abd	Alcohol ½ gal tins	tin	4
1-300		Distilled water 10cc amps	amp	108
1-325	a	Ether	tin	10
1-585	abc	Petrolatum, white 1 lb tin	tin	10
1-590	ad	Phenol 1 lb bottle	bot	2
2-005	a	Adapter, glass	one	2
2-391	ef	Dressing, battle, large, camouf.	one	200
2-393	e	" " med. camouflaged	one	200
2-396	e	" " small "	one	200
2-425	abc	Gauze, plain, 25 yd roll	roll	5
2-450	a	Gloves, rubber, operating 7½	pair	3
2-455	a	Gloves, rubber, operating 8	pair	3
2-555	a	Needle, hypo ½" 23 ga.	doz	1
2-580	a	Needle, hypo, 2"18 gauge	doz	1
2-930	e	Splint, basswood, 12 in set	set	100
2-1230	a	Syringe, intramuscular, gl.2cc	one	2
2-1240	a	" " glass 10cc	one	2
2-1245	a	" " " 20cc	one	2
2-1345	a	Tube, glass, "Y"	one	1
4-1105	a	Tubing, rubber, ¼"dia. 1/16" wall	length	1
6-035	a	Bedpan	one	7
6-291	a	Urinal	one	7
6-145	ae	Litter, metal pole	one	200
13-130	f	Pad, heat, chemical	one	100
13-135	f	Pad, heat, chemical REFILL	one	300
14-250		Blanket, combat, canvas	one	80
14-255	e	Blanket, field	one	600
S1-1001	h	Gas gangrene antitoxin	vial	20
S1-2040	hi	Tetanus antitoxin 1,500 unit	vial	10
S1-2094	h	Tetanus toxoid 50cc bottle	bot	40
S1-3310	a	Nikethamide 25% sol. 1.5cc	amp	50
S1-3440	a	Pentobarbitol-sodium 1½gr. caps 500 in	bot	1
S1-3450	a	Pentothal sodium 0.5 gm amp	amp	96
S1-3561	g	Plasma, normal, human, dried	unit	12
S1-4335	a	Sulfadiazine 0.5 gm 500 in bot	bot	2
S2-1550		Sheet wadding, cotton, nonabsorbent	pkg	1
S3-046		Airway, large	one	2
S14-020		Bag, water, sterilizing, complete	one	7

NON LISTED ITEMS

Stock No.	*Symbol	Item	Unit	Allowance Quantity
		Aminophylline NNR 0.24 Gm 10cc in box	box	1
	k	Atropine sulphate 1/200 gr ophthalmic discs 12 in tube	tube	12
	k	Homatropine hydrobromide 1/250 grain ophthalmic discs 12 in	tube	12

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Stock No.	*Symbol	Item	Unit	Allowance Quantity
	k	Fluorescein 1/250 gr ophthalmic discs 12 in tube	tube	12
	f	Sheeting, rubber, batiste (for use as operating linen) boilable	yd.	4
		Sheeting, oiled (substitute for batiste) NOT boilable.	yd.	11
		Rope, Nylon 1½ lb.	bundle	1
	f	Lantern, headlight type, battery operated, with headband	one	10
		Splint set, U.S. Army	case	2
	b	Running Record of Battle Casualties, 25 sets of three in pad	pad	5
	b	Tag, Emergency, Medical, U.S. Army Special	pad	10
		Medical Officer's outfit, emergency, surgical	case	1
	f1	Bunk straps	one	200
	h	Penicillin		

EXPLANATION OF SYMBOLS

a — Added quantity to supplement the amount in ship's commissioning allowance (Group 1a).

b — Limited quantity on hards available for resupply on special request when unexpected heavy expenditure has been necessary.

c — Substitute for dressing, burn, sterile, Tulle Gras.

d — Substitute for Bard Parker solution.

e — "Litter Units" should be made up and placed in racks on bulkheads. A unit consists of:

1 litter
1 field blanket
6 pieces of basswood splint
1 of each size battle dressing

f — Reduced quantities will be shipped due to small amount available at this time. Balance will be furnished later if practicable or, a substitute has been furnished.

g — Amount over allowance for issue to Beach Medical Officer when called for.

h — Refrigerated supplies. Should be placed in refrigeration immediately upon receipt. Blood and Penicillin will be delivered by Army prior to sailing.

i — For Allies or Prisoner of War Casualties.

k — For treatment of casualties due to chemical warfare agents. Should be kept in decontamination locker with other Chemical Warfare Supply material.

l — 100 British manufactured bunk straps shipped by Supply Officer EXETER, to ships that reported "none on board".

NOTE: The first shipment of material in Groups 1b and 1c was forwarded to the Supply Officer of your base on May 14, 1944. The second and final shipment is scheduled to leave the storehouse on or about May 23, 1944. The first and second copies of the requisition will then be forwarded to you by mail. The first (original) copy of the requisition will bear the WAY BILL NUMBER of BOTH

shipments. In making inquiries to the SUPPLY OFFICER of your base, relative to delivery of your supplies, mention the way bill numbers of the material not yet received.

c. Casualty treatment supplies.

i. The material included in this group is RESUPPLIED TO LSTs at the end of each trip from stocks on near shore hards. Material expended in care of casualties or issued to medical activities on far shore will be replenished in quantities necessary to bring stock level back to ship's allowance.

ii. Detailed list of resupply material:

Stock Number	Article	Unit
1-110	Alcohol, ½-gal. tin	tin) (See note un-
1-325	Ether	tin) (der symbol b
2-425	Gauze, 25-yd. roll	roll) (above for (amounts.
2-115	Bandage, plaster paris 3"	one
2-140	Battery, flashlight, single cell	one
2-505	Lamp, bulb, plain, (for 2 cell flashlight)	one - See 1d.
S1-1945	Serum, albumin (human)	pkg
S1-3361	Ointment BAL	tube
S1-3375	Ointment, protective	tube
S1-3790	Solution, dextrose 5% in normal saline 1000-cc. 6 in	case
S1-4335	Sulfadiazine 0.5-gm, 500 in	bot
S13-4335	Blankets, paper	one
S13-451	Insecticide, powder, 2-oz.	tin (for individual carry)
S13-468	Medical Resupply unit (BEACH BAG)	one
NL-2	Lamp, bulb, (for headlight)	one
NL-13	UNIT "A" Emergency surgical dressing case	one
NL-16	"Running Record of Battle Casualties".	pad) (See note
NL-16	Emergency Medical Tag, U.S. Army	pad) (b above.
-----	Whole blood	pint

iii. In addition to the above, it is anticipated that certain articles of supplies such as bunk straps, heat pads, etc., will be maintained in the near shore medical supply dumps for issue to incoming LSTs.

iv. Empty Unit "A" cases and Beach Bags should be salvaged and returned to the near shore hards. These will be returned to the storehouse for refilling. Empty whole blood bottles together with the air inlet and filter will be exchanged at the Army refrigerator truck on the hards for full bottles and sterile fittings.

d. Individual Equipment.

i. This material will be supplied ships in the same manner as group 1b. They will be charged to the ship's Medical Department and issued to members of the Medical and Hospital Corps on custody receipts. They will be kept full of dressings and etc., from the "A" unit and Beach Bags. Insecticide powder, batteries and lamps for the flashlights are articles of resupply and listed in group 1c above. The remaining articles are not resupplies.

ii. A list of these follows:

2-030	Badge, arm, red cross 1 per Medical Officer 2 per Hospital Corpsman.....	one	42
NL-14	Pouch, individual, Medical Officer, Unit "B".....	one	2
NL-14	Pouch, individual, Hospital Corpsman, Unit "C".....	one	20

2. Group Two (Army).

a. Army Exchange Unit of Medical Supplies.

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i. Following items are ARMY Medical Department Property and must not be used on board for any reason. Delivery to Army representatives will be made on board when called for and they will be responsible for unloading this material. Army will place another similar Unit on board upon return to the near shore. This will continue for about three trips per LST. See Phase One of property exchange, below.

ii. This Army material is not to be confused with the "litter unit" which is separate and distinct. The "litter unit" is made from material in the ship's allowance of Navy material. Read para. e, Page 5.

iii. The Army exchange Unit is marked with a red caduceus and the words "ARMY-NAVY PROPERTY EXCHANGE MATERIAL", on all bales, cases, etc. It may so happen that the 100 litters belonging to this load may not be so marked since many are shipped loose. Those shipped in bales or crates will be marked.

iv. This load of exchange material must be kept intact. Every Hospital Corpsman will be familiar with its stowage to direct the Army representative to its location. This will expedite unloading and prevent litters and blankets of the ship's allowance being sent ashore by mistake.

v. This Army property exchange material is comprised of the following:

BLANKETS, field (16 bales of 20)		320
LITTERS, metal pole		100
SPLINT SETS, U.S. Army	sets	4
DRESSINGS, surgical	case	3
PLASMA, 12 units in box	box	8
SPLINT LITTER BARS	no.	24

D. PROPERTY EXCHANGE.

The purpose of automatic property exchange is to prevent depletion of far shore stocks. This is divided into TWO PHASES

1. Phase one.

During Phase One, normal property exchange (item for item) will not be carried out but in lieu thereof, the Army Property Exchange Material listed in group 2a, page 6, will be delivered to the far shore as indicated above. After about the third trip or when the last load of Army exchange material has been delivered to the far shore, Phase Two will commence. The Army material will be used for care and transportation of casualties and eventually most of this material will be back on the near shore. During Phase One the "litter units" from ship's allowance will not be used except in the following instances:

a. Exceptions:

i. For issue to Beach Medical Officer with material listed below. It should be placed on topside, accessible for immediate delivery on signal:

20 "litter units" (from ship's allowance).
20 covers, combat, canvas or 20 paper blankets.
1 case Plasma (12 units) (See note (g) under Group 1b.)
4 Beach bags.

ii. Emergency issues of any kind that may become necessary before Phase One is effected.

iii. For casualties occurring on board, casualties received without litters or ambulatory cases who later become litter cases.

iv. The two "litter units" placed in each LCVP. (Maintain this number by replacing units issued).

2. Phase Two.

1. LST Medical Officers may assume that Phase Two (automatic property exchange) has commenced when no Army Exchange Units of Medical supplies are placed on board at the near shore.

2. Automatic property exchange consists of exchanging item for item at each step in the evacuation chain. This prevents depletion of far shore stocks. Example:

A casualty is delivered to an LST on a litter and covered with two blankets. The LST will send a "litter unit" and in this case, one extra blanket ashore.

Upon returning to the near shore hards with casualties, the ship's medical officer will submit to the Navy medical representative, a list of Medical Material expended for replacement based on ship's allowance.

It is expected that arm and leg splints, for item for item exchange, will be delivered to LSTs before sailing, or at hards.

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APPENDIX G

CHEMICAL WARFARE DEFENSE PROGRAM
(Correspondence pertinent to its promulgation)

Contents

"AN ESTIMATE OF SITUATION AS TO GAS CASUALTIES IN LANDING ASSAULT" dated 27 November 1943 compiled by Colonel W. D. Fleming (MC) USA of the Gas Casualty Division of the Office of The Chief Surgeon, HQ SOS ETO. . . . . Pages G-2 - G-5

"CHEMICAL WARFARE, FIRST AID SUPPLIES FOR LST" dated 16 December 1944. A memorandum to the Force Medical Officer, TF122, written by Commander G. M. Lyon, (MC) USNR, Chemical Warfare Defense Medical Officer, COMNAVEU . Pages G-6 - G-8

CTF122 "CHEMICAL WARFARE TRAINING" directive to the Force, dated 6 February 1944. . . . . .Pages G-9 - G-10

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 8 (PART II, paragraph 17)

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OFFICE OF THE CHIEF SURGEON
HQ SOS ETO
GAS CASUALTY DIVISION
APO 871

27 Nov 1943

AN ESTIMATE OF SITUATION AS TO GAS CASUALTIES IN LANDING ASSAULT

1. Mission.

To provide medical service for gas casualties in an assault. Medical Service as here used includes certain measures to prevent or minimize occurrence of gas casualties.

2. Situation and Opposing Lines of Action.

A. Considerations affecting opposing lines of action.

(1) Relative combat power.
Our air superiority is assumed.
We attack with a combat team.
Enemy combat power is unknown but will be emplaced in prepared and mobile installations.

(2) Time and space factors.
Attack probable between midnight and sunrise.
Water to be crossed may be from 20 to 100 miles or more.
Front that of a combat team in assault (1 - 4 miles).

(3) Terrain.
A beach suitable for landing craft. This may or may not be backed by dunes which present defiles as channels for deeper penetration inland and afford some cover from direct fire to wounded collected on beach.

(4) Dispositions.
We land in successive waves and penetrate inland consolidating positions as taken.

(5) Weather.
An offshore wind during time of attack prevails on many beach areas. During hours of attack the meteorological conditions favor use of gas, i.e. inversion conditions present will keep a gas cloud clinging close to both ground and water surface.

(6) Supply.
a. Combat team supply dumps are established on beachhead. These are later (D ≠ 4 days) taken over and consolidated by Med. Bn. HQ.

b. Heavy medical supplies cannot be landed before D ≠ 4 days.

(7) Evacuation.
a. Non-persistent agent casualties.
(1) Will occur near water line.
(2) Troops exposed to lung irritants are not casualties in latent phase before symptoms develop. Latent phase may be short in heavy concentrations of gas likely.
(3) After onset of symptoms casualties are pooled by company aid men and placed in whatever cover possible. These casualties taken over by Bn. Med. Section of Shore Engineers and Med. Sect. usual to each party. Early evacuation of lung edema cases should be attempted on returning LCI's and LST's if these can be loaded immediately when empty. This loading will require utmost coordination. It may be possible to load 100 litter cases on one LST during its unloading. An LST unloads by H ≠ 4-6 hours and must return immediately when unloaded. Special hospital craft for these cases brought in on call from far shore would be desirable.

(8) Enemy's knowledge.
Knowledge of impending attack must be assumed. May or may not be surprised as to exact time or location.

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(9) Hostile tactical doctrines.
Use of gas as adjunct to defense against assault must be expected. Use of a casualty producing non-persistent agent on or near water line and of persistent gas farther inland appears most logical.

B. Enemy Capabilities as to Gas.

(1) General.
a. If gas is used it will be in quantity much greater than experienced in World War I and by new technics.

b. Weapons.
(1) From air by spray or bomb.
(2) On land: Mobile land installations capable of lateral shift along coast. Permanent installations (unlikely).

(2) Non-persistent lethal agents (Phosgene, HCN, Arsine).
Released from many large containers at H to H + 1 hour to produce very heavy (crash) concentrations. These installations kept mobile and capable of rapid lateral transfer along coast to particular beach threatened. May be:
a. Land installations to be placed along shore near water or inland.
b. Floats off shore.
c. Submerged tanks off shore.

Release of any of these would produce a heavy concentration which under the meteorological conditions (inversion) to be expected over beach and water would cling well to ground and water surfaces. Such release would be at very time use of gas mask is most difficult by troops coming ashore, whether at moment of landing from assault craft or in such craft off shore. An off shore wind at hour of assault would be especially favorable to enemy but even an on shore wind would be more to his advantage than ours, since the defending troops would be much less hampered by gas masks than by troops landing from assault craft. Further, with an off shore wind, such a gas cloud would be in casualty producing concentration10 - 15miles off shore. The necessity of masking would thereby interfere with transfer of troops from transports to landing craft.

(3) Persistent agents (vesicants).
a. Munitions.
(1) Land mines.
(2) Air spray and bombs.
(3) Shell and projector drums.
(4) Contamination vehicles (sprinkler carts).
(5) Floating vesicant-oil mixtures.

Of these, land mines appear most probable. These would be large and disposed especially in the defiles leading inland from the beach and would contaminate heavily ground which must be crawled over under machine gun fire concentrated on these same channels of penetration. Sprinkler carts for ground contamination of vicinity of HE mine fields, employed at same time as these fields are laid are another possibility. Floating vesicant-oil mixtures and underwater deposits of vesicants along shore are recently suggested possibilities. These would produce casualties in soldiers wading through such areas.

b. Agents.
Mustard, lewisite, nitrogen mustard. Due to the dampness of terrain in the hours likely for the assault, lewisite appears the least likely agent unless delivered by spray or air bombing which appear to be the least likely methods. Lewisite could not be used in water. Due to lack of odor, the nitrogen mustards hold more likelihood of surprise. Mustard appears the most reliable.

C. Own Lines of Action.

(1) General.
a. Assault is unlikely unless we have decisive air superiority, which would preclude general enemy dispersion of chemicals from air.

b. Bombardment and shelling of beach to destroy mine emplacements has been used (Sicily and Italy) not later than 3 days prior to attack. This gives enemy a lull of 2-3 days in which to replace or emplace gas installations if they have any idea as to where assault is to come in.

c. Shelling or bombing as assault waves come in is largely counter-battery fire put down much farther inland than gas installations are likely to be placed, thus lessening chance of destroying them before the assault waves come in.

(2) Non-persistent agents.

a. General: Perfection of mask discipline under the very difficult conditions of landing will be essential.

b. Cyanide or cyanogen chloride: Casualties from these agents will recover without treatment other than rest or will quickly die.

c. Arsine: Arsine casualties can be treated on far shore only by increased water intake. Priority of evacuation is not seen as necessary.

d. Phosgene (diphosgene): The heavy concentrations possible will produce a short latent period. Once edema ensues casualties are litter cases. The only treatment possible on far shore is rest, warmth and, for blue cases only - venesection. Oxygen therapy is absolutely essential for a certain proportion of lung edema cases. Supply of oxygen to far shore before D ⁄ 4-10 days is believed impossible. This makes evacuation of lung edema cases to near shore imperative, if such cases are to be saved.

(3) Persistent agents. (Vesicants).

The mask will protect eyes and lungs at expense of physical endurance and some interference with firing. Impregnated clothing and shoes will give significant but limited protection to men crawling over heavily contaminated ground. Heavily contaminated clothing must be removed with lowering of protection. Impervious clothing may be wearable in the cool early hours of the assault by troops assigned to clear the defiles inland from the beach. First aid against gas must be performed continuously and will exhaust the one tube of protective ointment normally carried. Additional supplies of ointment are desirable.

One or more bulldozers brought in with the early waves of assault may aid in clearing paths through contaminated defiles. But such paths will tend to canalize the advance over ground covered by machine gun fire.

D. Casualty Estimates.

(1) Non-persistent agents.

Minimum:	(Gas mask worn by maximum number of troops)	10%
Maximum:	(Masking interfered with as in wading ashore in deep water.)	80%

(2) Persistent agents.

Minimum:	(Gas masks and protective clothing worn)	20%
Maximum:	(Depending on number of gas masks rendered unserviceable by water.)	30 - 40%

(3) Analysis of opposing lines of action. (Medical service of gas casualties only.)

a. Non-persistent agents. A heavy concentration of lethal non-persistent agents requires rapid masking. From the time of leaving the transport until the soldier is firmly established on shore many factors may make masking difficult or impossible. Among these are:

(1) Seasickness in landing craft.
(2) Splashing or submersion of mask canisters in carriers or while worn.
(3) Abnormally large packs or other burdens carried.
(4) Crowding in landing craft.

If the element of surprise in assault is lost, the enemy may be able to emplace large containers of gas producing a crash concentration of gas so close to water line (the most difficult point for masking) that large numbers of rapidly developing casualties will result even without an off shore wind. Emplacement of mobile installations to effect this may be possible in the lull between shore bombardment and the assault and such installations would be little affected by counter-battery fire during assault. Even if the wind is on shore masking will interfere less with the enemy than with our troops coming ashore. Lung edema cases require oxygen which cannot be landed in the early phases (before D ⁄ 4 days) of the assault, when most needed.

b. Persistent agents. Mines for ground contamination can be emplaced along with HE mines or one type of installation used to canalize attack through the other type. Such installations are likeliest in channels of penetration inland from beach which must be traversed before much ground decontamination can be done either by chemicals or bulldozers. Crossing of these channels must be by crawling to avoid fire concentrated on these same channels.

(4) Comparison of own lines of action.

a. Non-persistent agents.

(1) Perfecting of gas discipline before embarkation. This is the only measure possible against catastrophic panic among troops during the most confused moment of assault, if to this normal confusion a crash concentration of a lethal gas is added. Even release of an harassing agent such as CN or DN might cause panic at such time among troops not having high gas discipline and meeting gas for the first time.

(2) Replacement of masks damaged by water in getting ashore may not be possible in time to be of help.

(3) Lung edema cases arising early in assault should not be held on far shore to await arrival of clearing companies or evacuation hospitals. The most critical period for a lung edema case is the first 48 hours during which time oxygen therapy is vital. Oxygen in significant amounts cannot be gotten to far shore before D ≠ 4 days or 2 days too late.

(4) Evacuation to near shore: Oxygen supplies can be gotten to near shore medical units through the British E.M.S. service. Early evacuation to near shore appears imperative. If this evacuation can be done by assault craft, these will not be available much after H ≠ 6 hours, and casualties must be loaded immediately during and after the unloading of incoming craft at far shore since these craft can not be held. Such loading will require the nicest coordination between beach medical parties and landing craft. Special hospital craft brought in empty on call for this evacuation would be most desirable, but their presence being permitted during D day is questionable.

b. Persistent agents.

(1) Perfection in training of every man in gas discipline and first aid against gas must be accomplished before embarkation.

(2) Impervious clothing for certain troops crossing contaminated areas is desirable.

(3) Issue of at least one extra tube of protective ointment per man will aid in combating the heavy contamination likely to be encountered.

(4) Replacement masks should be brought in time for penetration of defiles ashore. A certain number of such can be obtained from the dead or certain casualties. Casualties evacuated to near shore might leave masks behind for such use.

(5) Replacement stocks of clothing should be landed by D ≠ 1 day.

(6) Vesicant casualties, either skin, lung or eye, will demand no priority of evacuation or of treatment over gun shot casualties. The special drugs and supplies for treatment of such casualties should be brought ashore as early as possible after H ≠ 6 hours.

(5) Decision (Recommendations).

a. The possibility of the use of non-persistent (lung irritant and systemic poison) agents by enemy in defense of beach should not be overlooked.

b. Gas discipline in all phases should be brought to the highest state of perfection.

c. Lung edema casualties should be evacuated to near shore by all available landing craft and by special hospital craft if available.

d. Additional protective ointment should be issued assault troops.

e. Impervious clothing should be issued to troops clearing defiles and other contaminated areas.

f. Replacement masks should be made available as early as possible.

g. Replacement of contaminated outer clothing should be made available as soon as possible after D day.

h. Drugs and supplies for treatment of vesicant casualties should be brought ashore by H ≠ 6 hours.

s/ Wm. D. FLEMING
Colonel, Medical Corps.

AMERICAN EMBASSY
Office of The Naval Attache
London

16 Dec 1943

MEMORANDUM TO CAPTAIN DOWLING (MC) USN

Subject: Chemical Warfare, First Aid Supplies for IST.

1. During the past 20 months there has been a complete acceptance by all military services of the United Nations in the European Theater of Operations with regard to the principle of the individual being responsible for his own protection against chemicals.

2. For this purpose, each individual is supplied with (a) mask, (b) eyeshields, (c) ointment and absorbent material for personal decontamination, and (d) "impregnite" for treating boots. Beyond this the British supply impervious "gas capes" which have no merit over the ordinary rubberized raincoat or poncho.

3. The further principle is accepted that if this material is maintained in proper condition and properly employed by the individual, casualties from enemy use of chemicals will be minimal.

4. To effect the implications of paragraph 3, great emphasis is placed on training of the individual in the practical aspects of chemical defense, i.e. individual protection.

5. Weather conditions in the European Theater of Operations favor the efficacy of "personal decontamination" as adopted by the British Services and the U.S. Army in this theater.

6. Together with the above viewpoints, which were not clearly realized by us in the United States 20 months ago, has come the realization that the handling of chemical casualties in the early stages can be simplified to a great extent without significant detriment to the ultimate welfare of the individual.

7. It therefore seems both advisable and practical to rely more and more on standard first aid supplies and less on special chemical warfare first aid supplies.

8. Vesicant burns, particularly during the first two days after exposure, require no different handling from thermal burns. In fact the less done to them and the longer the vesicant cover can be maintained intact, the better. When pain is great due to the distention of the fluid within the vesicle, simple puncture of the vesicle roof is sufficient to relieve pain. The seeping serum provides a desirable moisture to the dressing, protects the lesion and does not invite infection. Dressings of the usual type protect against fingers scratching and introducing infection. Tanning procedures and debridement delay healing and make the wound more painful as well as invite infection. A sulfonamide cream may be desirable, but even this is not essential as long as the burn is protected grossly by a relatively clean dressing. Even in the factories a tulle gras and vaseline dressing has been distinctly satisfactory. As a refinement, but not required, is magnesium sulphate for hypertonic wet dressings or calomine lotion for the indurated areas surrounding the vesicles and the simple areas of induration.

9. Burns due to arsenical agents are readily treated with the U.S. Navy BAL ointment. The use of hydrogen peroxide is believed to be unnecessary and impractical in the presence of the standard BAL ointment.

10. Burns due to white phosphorus can best be handled with a simple wet dressing (plain water, saline or sea water) until such time as the phosphorus particles may be removed, preferably in a darkened room, or under a dark covering for the operator's head and the area of the wound. As to copper sulfate, if it is to be supplied, one has to consider whether it is more economical from all angles to stock it and carry it, or whether the time and effort of personnel required to keep the casualties' dressings wet is the more important. I personally feel the copper sulfate can be dispensed with. Even the use of soda bicarbonate in water is to be viewed in the light of a refinement more suitable for a hospital than as a first aid measure.

11. For the eyes, if irrigation is required, a standard canteen with holes bored in opposite sides of the screw cap serves simply and effectively the purpose of an irrigating bottle and in no manner alters the canteen's function in normal use. It is believed that plain water, saline or sea water are adequate as an irrigating medium. Whether mineral oil or a bland oil for use in

eyes injured 12 to 24 hours or more previously should be included in the first aid supplies is a question to be decided. Castor oil is certainly contra-indicated in chemically injured eyes.

12. To summarize the important first aid procedures beyond which one need not go in evacuating chemical casualties on LST are:

(a) Mustard - essentially as for thermal burns.

Skin - clean dressings as protection.
(a) Plain.
(b) Saline.
(c) Vaseline, sulfa cream, etc.
Scrotum - Plain saline wet dressings.
Eyes - Mineral oil if swollen and sticky.
Respiratory - Morphia, or if desirable, sedatives of phenobarbital type.
and Shock

(b) Arsenical burns (or suspected arsenical burns) - BAL ointment.

(c) Choking gases - Morphia.
- Sedatives of phenobarbital type.
- Oxygen in limited supply with preference to nasal catheters as opposed to more complicated masks.

13. To increase usual first aid supplies by a reasonable percentage, not over 20-30%, particularly with respect to:

(a) gauze dressings.
(b) burn dressings.
(c) Morphia.
(d) sedatives.

14. To supply increased amounts:

(a) cotton waste.
(b) BAL ointment.
(c) soap.
(d) canteens with screw tops prepared to serve as irrigation bottles.
(e) oxygen cylinders (commercial)
- flexible lines.
- pressure equalizers if possible.
- catheters for nasal administration.

15. Medical personnel assigned to LST, officers and enlisted men alike, should receive specific instructions in (a) chemical defense of a non-medical nature for their own protection, and (b) chemical warfare medicine with specific training in the problem of handling chemical casualties on LST. This would include a prepared precis of what they should know and how they should act.

16. In regard to the assignment of special chemical casualty treatment personnel to LST groups, there are two points of view, each with its merits.

17. Colonel Fleming has attempted to develop special "gas casualty treatment" teams. These units may permit of the desired flexibility and mobility, but it is believed they are much less practical than appeared at first. Their greatest value would appear to be as personnel to be rushed to the area of the chemical incident to relieve the strain on the existing medical services, in order that the latter may not be disrupted on account of the heavy load of chemical casualties.

18. The second viewpoint, and the one to which I subscribe, is that it is more practical to have all medical personnel, officers and corpsmen, trained in the few extra things they should know to care for chemical casualties, under the circumstances which will exist on LST, as a regular part of their medical services, if necessary augmenting the number of regular medical personnel by a very few additional hospital corpsmen, and not by additional medical officers. It is believed that this can be accomplished by means of training all medical personnel, with an economy in the number of extra personnel required, if any, and with, in the end, a better end result. It is believed that the training usually given hospital corpsmen, and the responsibilities usually delegated to the senior ratings are such that they can make this possible in a manner not likely to be attained by

Army hospital corpsmen. This is a matter which has occupied a considerable study on my part during the last 18 months, and it is in line with British Army thought and practice. Their policy is that just as the soldier accepts "gas" as an ordinary weapon of war, so does the medical man and the hospital corpsman accept "gas casualties" as ordinary casualties of war. To this end all medical officers in the British Armed Forces are given training in the care and handling of "gas casualties" from the first aid problems of the most forward echelons of combat to the general hospitals of the rear areas. As a consequence of this principle of universal training for medical personnel, they have developed a simplification of practice based on fundamentals and devoid of frills. The usual medical personnel, as well as the usual medical supplies likely to be available at the time form the basis for meeting the chemical incident from the standpoint of the medical services. This, in turn, is based on the concept that "personal decontamination" is a personal responsibility, and individuals do not come to the medical services until they become casualties.

19. From our observations, Eley and I have a strong feeling that little extra is needed in the way of additional medical supplies, but much in the way of training and practice of personnel in the fundamentals of (a) chemical defense (personal protection) and (b) chemical warfare medicine (the handling of chemical casualties).

s/ George M. Lyon
Commander (MC) USNR

File No.
CTF122/S77/A16-3
Serial: 00684

UNITED STATES FLEET
TASK FORCE ONE TWO TWO

Navy 803,
c/o Fleet Post Office
New York, N.Y.

6 Feb 1944

From: Commander Task Force ONE TWO TWO.
To: Commander ELEVENTH Amphibious Force.
Commanding Officer Advanced Bases.
Prospective Commanding Officer MULBERRY.
Prospective Commanding Officer Beach Organization.

Subject: Chemical Warfare Training.

Enclosure: (A) Chemical Defense Bulletin of Medical Department.
(B) HQ ETOUSA Training Memo 42 of 23 December 1943.

1. The possibility of the use of chemical warfare by the enemy to repel an amphibious assault must be recognized and prepared for by all members of this Force. On 6 July 1943 the Amphibious Force, U.S. Atlantic Fleet issued a report showing the availability of poison gas supplies and their storage along the northwestern coast of Europe. If Germany is to use these supplies at all, it would be most obvious and likely in that difficult time at the start of an amphibious assault. Poison gas used against untrained and unprepared sailors and soldiers would cause serious panic and might compromise a whole operation. Against trained and properly equipped personnel, however, gas is simply another weapon to overcome. For this reason the need for adequate anti-gas training and equipment throughout this Force is imperative.

2. Steps will be taken, therefore, to see that all units of your command are properly trained and equipped for gas defense. Unit commanders should be responsible for all phases of this defense and particularly for the following: (a) issue and state of all personal gas equipment, (b) state of training of all personnel in proficiency in use of gas mask and personal decontamination, (c) familiarity with gas alarms and (d) familiarity with gas duties of sentries.

3. The following is the equipment that should be in the possession of every man in the Force:

(a) Gas mask (ND3 or equivalent).
(b) Eye shields (1 packet of 2).
(c) Ointment S461 (1 tube).
(d) BAL ointment (1 tube).
(e) Sleeve detectors (2).
(f) Cotton waste (1 ounce to be carried in more than one place, gas mask holder, pocket, etc).
(g) First aid packet.

4. In addition to the standard equipment listed above the following equipment is prescribed for all crews of small boats that will be landing on a hostile beach and all personnel including beach parties that will land on the hostile shore:

(h) Poncho, raincoat, or rubberized coverall
(i) Impregnated uniform.
(j) Treat shoes with impregnite or "Dubbin".

5. It is recommended that all crews of all major craft whose stations are exposed, that all crews of Mulberries, and that all Advanced Base personnel have the same equipment as in paragraph 4, and that at least they have item (h).

6. Each commissioned ship and each base of this Force shall have a chemical Defense Bill, will set up a decontamination party and will have on hand the necessary protective clothing, buckets, brushes, etc. and at least 200 lbs. of chloride of lime or its equivalent.

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7. Each LCT will have on board the necessary gear and at least 100 lbs. of chloride of lime or its equivalent and the crew must be taught its proper use.

8. Commanding officers can requisition any of this material which they do not have through the usual channels. It is either presently available or will be shortly. Beach battalions who draw standard Army uniforms should make sure that these have been impregnated before receiving them from Army sources.

9. Each man must be made proficient in the use of his personal equipment and he must be given a sense of responsibility for its care and maintenance. This must be done by explanation through all possible means of the dangers that an unexpected gas attack would bring. Men need not be frightened, but rather it should be explained that a gas attack upon them will be a failure if they observe the fairly simple precautions they are being taught. Each man must carry his personal equipment on his person or within reach at all times during an operation. In a gas attack it is the first minute that counts.

10. The training of all personnel shall consist of a course modeled on that already being given on a small scale at all bases of this Force. Training shall so far as possible be by practical exercise rather than by classroom lecture. This training must be supplemented by drills, exercises, and inspections at suitable intervals. Defense against chemicals is based on the individual being able to protect himself in such a manner that he can carry on as a fighting man in spite of chemicals. This can be accomplished only by training of the men in a realistic manner.

11. Gas should be used from time to time in joint training exercises with Army units. In such exercises all precautions listed in Training Memo 42, HQ ETOUSA of 23 December 1943 will be observed.

12. It will be the Navy's responsibility in any actual operation to see that (a) all Naval personnel are trained and equipped for personal defense against gas, (b) to decontaminate all ships and craft, and (c) to decontaminate its own shore establishments. The Chemical Warfare Service of the Army plans to have small decontamination groups at all hards and the Army shore party will include a decontamination group. At large ports the British authorities have trained decontamination groups.

s/ A.G. KIRK

Copy to:
ComLanCrab11thPhib
CominCh
ANCXF
CG 1st US Army
ComNavEu.

(Note: Enclosures A and B as listed in this correspondence are not included in this report.)

APPENDIX H

CASUALTY RECORDS AND REPORTS

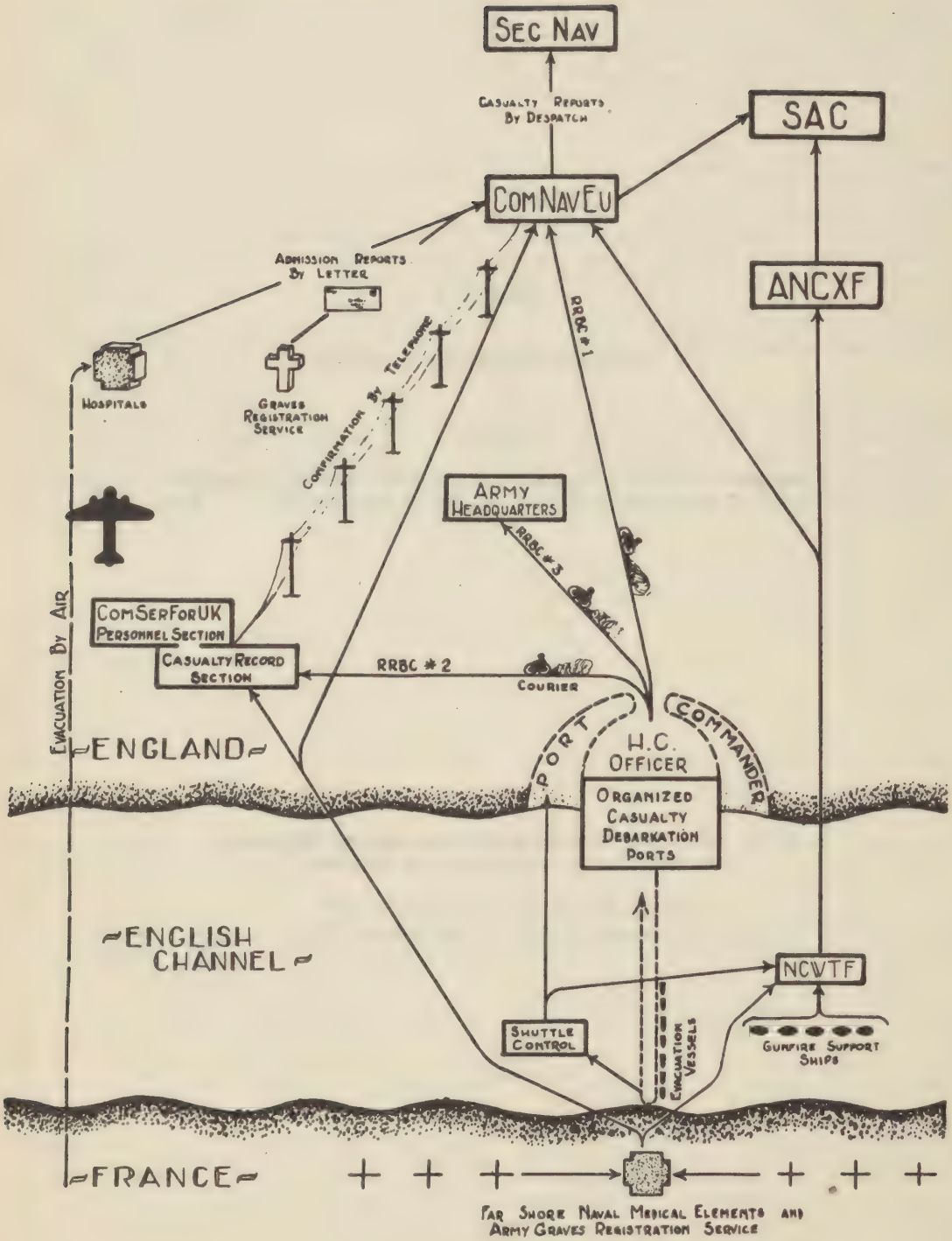
Contents

Diagramatic sketch - Mechanics of Accomplishment - Page H-2
Detail of the Running Record of Battle Casualties H-3 - H-5

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 10 (PART II, paragraph 30)
Page 20 (PART III, paragraph 63)

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SEC NAV
CASUALTY REPORTS BY DESPATCH
SAC
COMNAVEU
ANCXF
ADMISSION REPORTS BY LETTER
HOSPITALS
GRAVES REGISTRATION SERVICE
CONFIRMATION BY TELEPHONE
RRBC # 1
ARMY HEADQUARTERS
RRBC # 3
COMSERFORUK PERSONNEL SECTION
CASUALTY RECORD SECTION
RRBC # 2
COURIER
EVACUATION BY AIR
ENGLAND
PORT
H.C. OFFICER
COMMANDER
ORGANIZED CASUALTY DEBARKATION PORTS
ENGLISH CHANNEL
NCWTF
SHUTTLE CONTROL
EVACUATION VESSELS
GUNFIRE SUPPORT SHIPS
FRANCE
FAR SHORE NAVAL MEDICAL ELEMENTS AND ARMY GRAVES REGISTRATION SERVICE

THE RUNNING RECORD OF BATTLE CASUALTIES

(Detail of casualty report No. 2 as listed in Appendix I.)

All casualty evacuation vessels were required to maintain a casualty record as well as render casualty reports. In order to facilitate reporting under battle conditions, a Running Record of Battle Casualties (RRBC) was developed and supplied to all casualty evacuation vessels well in advance of the operation.

This record, when completed, contained all the pertinent data required for subsequent casualty reporting. Its size, 17" x 22", tended to prevent loss and afforded sufficient space to render legible almost any type of penmanship. The record was prepared in pad form, each pad containing twenty-five triplicate sets; the original copy was printed in black; duplicate copy in red and triplicate copy in green ink. Each pad contained sufficient suitable sized carbon paper between the last page and backing. Each pad was bound and perforated across the top. Two ¼" holes through the bindery edge facilitated mounting the pad on a rigid portable writing surface. Each original had a full set of instructions and a model of a completed record printed on the reverse side, tumbled in print form, to facilitate reference. Each sheet provided space for recording fifteen casualties. (The operational employment of the RRBC differed from that shown in the lower left corner of the form, but is explained under Report No. 2, page 6 of Appendix I).

On arrival at casualty debarkation ports, Army and Navy Medical representatives boarded evacuation vessels, receipting for casualties and remains of dead as listed on the RRBC. The original and duplicate copies were then forwarded by courier to designated addresses in preaddressed envelopes which were stocked at the port headquarters. The triplicate copy was retained at the port for immediate use in casualty triage and then transmitted to army headquarters.

Photostatic copies of the RRBC (reduced in size) follow as next two pages.

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(Observe side of form)

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RUNNING RECORD OF BATTLE CASUALTIES

U. S. S. _____ (NAME - NUMBER)

CASE NUMBER	DATE AND TIME RECEIVED ON BOARD	FULL NAME (SURNAME FIRST MIDDLE)	RANK OR RATE	SERIAL OR SERVICE NUMBER	ORGANIZATION (SERVICE)	ORGANIZATION (UNIT)	MARITAL STATUS	NEXT OF KIN (FULL NAME RELATIONSHIP ADDRESS)	FLYING STATUS	DIAGNOSIS (NOMENCLATURE OF: WOUND - INJURY - DISEASE)	DIAGNOSIS (CAUSE OF: WOUND - INJURY)	DISPOSITION		TYPES (AMBULATORY)	TYPES (STRETCHER: TRANS. PORTABLE)	TYPES (STRETCHER: NON-TRANS. PORTABLE)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				
							S M W D		A B C D E F G H I J K L			T - D - DD				

SHIP MEDICAL OFFICER

NAME RANK (MC) USNR

ORIGINAL—(WHITE)—RETAIN IN SHIP'S PERMANENT FILES
DUPLICATE—(RED)—(STATISTICAL COPY)—FORWARD AS DIRECTED BY THE MEDICAL PLAN
TRIPLICATE—(GREEN)—RECEIPTING OFFICER'S COPY

CASUALTY TRANSFER RECEIPT

Time:
Date: I accept custody of the above listed casualties and/or dead except as follows: Nos: . (List the casualty case numbers [columns 1 on this sheet] of any casualties or dead NOT TRANSFERRED to medical officer signing this receipt.)

Signature: Rank:
Organization Place:

(Reverse side of form)

GENERAL INSTRUCTIONS

Exercise extreme care in compiling information. **BE BRIEF BUT BE ACCURATE.** When possible, check verbal information against identification and Emergency Medical Tag.

Use indelible pencil—**PRINT** or **WRITE PLAINLY.**

Prepare this form in **TRIPLICATE** per instructions printed on reverse of original.

INSTRUCTION FOR NUMBERED COLUMNS

1. **CASE NUMBER:** Number **all** casualties, preferably in the sequence of their arrival on board ship. Number the Emergency Medical Tag **with the same number** in large easily read numerals. This will facilitate counting and locating.
2. **TIME AND DATE:** Indicate the approximate time of day casualty was received on board ship.
3. **FULL NAME:** Surname-First-Middle.
4. **RATE OR RANK:** Use Official abbreviation if known, otherwise write out in full.

   SERVICE OR SERIAL NUMBER: List Navy service number—Army serial number. Check against identification tag.

6. **ORGANIZATION-SERVICE:** Branch of service. Abbreviate—USN, USA, etc. If prisoner of war, abbreviate as POW and indicate nationality.
7. **ORGANIZATION-UNIT:** Indicate what Company, Battalion Regiment, Ship, etc., the casualty was attached to.
8. **MARITAL STATUS:** Circle appropriate initial. S-single; M-married; W-widowed; D-divorced.
9. **NEXT OF KIN:** List full name, relationship and address.
10. **FLYING STATUS:** This information **required only in case of death.** Circle appropriate symbol as follows:

Pilot, Copilot, Command Pilot	A
Navigator	B
Bombardier	C
Observer	D
Flight Surgeon	E
Photographer	F
Radio operator gunner	G
Engineer gunner	H
Armorer gunner	I
Gunner	J
Paratrooper-Jump status	K
All on flying status or jump status not covered above	L

11. **DIAGNOSIS-NOMENCLATURE:** Description and anatomical location of wound or injury. Diagnosis in case of illness. Use upper portion of space alloted for **original diagnosis** as listed on Emergency Medical Tag. Reserve lower space for change of diagnosis.
12. **DIAGNOSIS-CAUSE:** Describe briefly how wound or injury was received.
13. **DISPOSITION:** Circle appropriate symbol: (Indicate time and date) T-transferred, D-returned to duty (ship's company personnel **only**), DD-died. State to what organization, hospital, ship, port, etc., disposition was made in individual cases **not covered by the signed Casualty Transfer Receipt on this form.**
14. ___ For use as may be desired by the ship's medical officer.
15-16-17. **TRIAGE COLUMNS:** Information intended for the medical units receiving evacuated casualties. Divide patients into two main types: AMBULATORY and STRETCHER. Stretcher cases are further divided into **transportable and non-transportable** types, as follows:
15. **AMBULATORY:** Mark an X in this column for all "walking" casualties.
16. **STRETCHER - TRANSPORTABLE:** Mark an **X** in this column for those casualties who, in the opinion of the ship's medical officer at the time of casualty debarkation, can safely tolerate **overland** transportation before requiring medical attention. **(Include dead.)**
17. **STRETCHER - NON-TRANSPORTABLE:** Those casualties requiring **IMMEDIATE** medical/surgical attention upon debarking.

ABBREVIATIONS

CW	- Contused wound.	KIA	- Killed in action.
EW	- Extensive wound.	LW	- Lacerated wound.
FUO	- Fever of undetermined origin.	MW	- Multiple wounds.
		NYD	- Not yet diagnosed.
FC	- Fracture compound.	Pen W	- Penetrating wound.
FCC	- Fracture compound comminuted.	Perf W	- Perforating wound.
		Pun W	- Punctured wound.
FS	- Fracture simple.	SV	- Severe.
GSW	- Gunshot wound.	S	- Slight.
IW	- Incised wound.	WIA	- Wounded in action.

The above Army abbreviations may be used to conserve space only. No abbreviation will be used as a complete description.

MODEL

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RUNNING RECORD OF BATTLE CASUALTIES

U. S. S. LST ±001 (NAME / NUMBER)

CASE NUMBER	DATE AND TIME RECEIVED ON BOARD	FULL NAME (SURNAME FIRST MIDDLE)	RANK OR RATE	SERIAL OR SERVICE NUMBER	ORGANIZATION: SERVICE	ORGANIZATION: UNIT	MARITAL STATUS	NEXT OF KIN (FULL NAME RELATIONSHIP ADDRESS)	FLYING STATUS	DIAGNOSIS: NOMENCLATURE OF WOUND - INJURY - DISEASE	DIAGNOSIS: CAUSE OF WOUND - INJURY	DISPOSITION		TYPES: AMBULATORY	TYPES: STRETCHER: TRANSPORTABLE	TYPES: STRETCHER: NON-TRANSPORTABLE
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0600 2-1-44	JOHNSON, HERBERT CLIFTON	BM2/c	341 17 92	USN	USS LST-001	S M W (D)	JOHN MASON JOHNSON FATHER RFD #3 OXCROSS, KANSAS	A B C D E F G H I J K L	NO MEDICAL TAG HYSTERIA	GUNFIRE?	T - (D) - DD 0830 2 - 3 - 44	—	—	—	—
2	0600 2-1-44	SMITH, FRED THOMAS	2nd LIEUT.	0-324 67	USMC	50th AIRBORNE DIVISION	(S) M W D	JAMES SMITH BROTHER 1374 FIRST ST. CHICAGO, TEXAS	A B C D E F G H I J (K) L	BURNS - SV - GENERAL	CRASHED AIRCRAFT	T - D - (DD) 0400 2 - 3 - 44			X	
	0900 2-1-44	BROWN, ROBERT NELSON	PFC	333 333 33	USA	10th DIV. HQ.	S (M) W D	BERTHA BROWN WIFE 3467 SYCAMORE PL. LOS ANGELES, OHIO	A B C D E F G H I J K L	GSW - PEN - SHOULDER LEFT - S	SHELL FRAGMENT	T - D - DD — — —		X		
4	2400 2-1-44	THORNDYKE, PERCIVAL CECIL	LIEUT.	0-67193	BR. RN	H.M.S. HOLLY	S (M) W D	ELIZABETH THORNDYKE WIFE 10 PEWTER MEWS IPSWICH, SUFFOLK	A B C D E F G H I J K L	NO MEDICAL TAG BLAST CONCUSSION - WATER	UNDER WATER EXPLOSION - (SURVIVOR)	(T) - D - DD 1200 2 - 3 - 44 To APA-999	—	—	—	—
5	0830 2-3-44	SCHULTZ, HANS RUDOLF	CPL.	7X9941	POW (GER.	7th COAST ARTILLERY	S M (W) D	WILHELM SCHULTZ FATHER 17 REICH PLATZ BERLIN	A B C D E F G H I J K L	CW - FRONTAL REGION - S INTRACRANIAL INJURY - SV	WIA - STRUCK WITH RIFLE BUTT	T - D - DD — — —				X
							S M W D		A B C D E F G H I J K L			T - D - DD				

SHIP MEDICAL OFFICER

JEROME X. SPOTS (NAME) LT (JG) (RANK) (MC) USNR

ORIGINAL—(WHITE)—RETAIN IN SHIP'S PERMANENT FILES
DUPLICATE—(RED)—(STATISTICAL COPY)—FORWARD AS DIRECTED BY THE MEDICAL PLAN
TRIPLICATE—(GREEN)—RECEIPTING OFFICER'S COPY

CASUALTY TRANSFER RECEIPT

Time: 0930
Date: 2-4-44

I accept custody of the above listed casualties and/or dead except as follows: Nos: 1 AND 4 (List the casualty case numbers [column 1 on this sheet] of any casualties or dead NOT TRANSFERRED to medical officer signing this receipt.)

Signature: JOHN J. SMITH Rank: CAPTAIN (MC) USA

Organization: MED. DET. 999 FIELD HOSP. Place: PITTSBURG, ENGLAND

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APPENDIX I

OPERATIONAL MEDICAL PLAN

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 10 (PART II, paragraph 32)
Page 14 (PART II, heading above paragraph 44.)

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MEDICAL PLAN

1. Task

The Western Naval Task Force will supply medical service for all its component parts. This consists of medical service to all attached and embarked forces between the ports of embarkation and the high water-mark on the far-shore landing beaches. Included is: (a) Joint Medical Service by Army and Navy to all personnel in the Beach Area and (b) seaward evacuation and medical service afloat from the far-shore landing beaches to the near-shore ports and/or bases.

2. Responsibilities

a. Near-shore

(1) NAVY

(a) The delivery of casualties to designated near-shore ports or hards at which special holding units will be provided by the Army. In the event that urgent necessity requires the landing of casualties at other than designated ports or hards, the Navy will be responsible for timely warning to the Army in order that casualties may be received and property exchanged without delay.

(b) Providing the Army with information of existing Naval medical installations, in appropriate areas, that may be utilized in connection with casualty evacuation.

(2) ARMY

(a) The establishment and maintenance of such holding medical units in the immediate vicinity of ports and hards to which converted casualty-bearing ISTs and other casualty carrying ships have been designated to return, as may be required for the reception of casualties evacuated by ship.

(b) For unloading all ships and craft at specified docks and hards.

(c) The provision of such additional medical supplies and equipment in the immediate vicinity of designated near-shore ports and hards as may be necessary to effect prompt property exchange with returning LSTs and to meet emergency requirements arising in connection with shore-to-shore evacuation.

(d) The provision of small emergency medical units at all hards used by returning U. S. craft to meet the needs of the few casualties who are evacuated by other than ships, or to other than designated hards.

(e) The necessary liaison with the Navy required for the reception of casualties without delay on the near-shore.

b. Far-shore

(1) NAVY

(a) The prompt exchange of medical property at the far-shore, in order not to deplete far-shore stock of medical equipment and supplies. This will be effected in accordance with the agreement of the U. S. Navy, First U. S. Army and S.O.S.

(b) The far-shore-to-ship evacuation of casualties in cases where DUKWs cannot be used for that purpose.

(c) Medical service to personnel of the Ferry Service, Mulberry organizations, Advanced Bases, Coasters, etc., will be NORMAL except where special provisions are required.

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(2) ARMY

(a) Medical service to all personnel landward of the high-water mark on landing beaches.

(b) The necessary liaison with the Navy Medical section of Shore Party required for the evacuation of casualties from the beach.

(c) The provision of sufficient DUKWs (especially allocated to the medical department when the military situation permits), for evacuation of casualties from the beaches to the ships.

(d) The loading of DUKWs, craft and boats, used to transport casualties from shore-to-ship; and the loading of motor vehicles when motor transport is used to deliver casualties to beached craft.

(e) The transportation by DUKWs of casualties from shore-to-ship, and the transportation by the most suitable motor vehicles available in cases where motor transport may be used to deliver casualties to beached craft.

(f) The provision of sufficient motor transportation facilities for necessary lateral movement of casualties in the vicinity of beaches.

c. Afloat

(1) Transports.

APs, APAs will provide:

(a) Medical service to their own and embarked personnel.

(b) Casualty evacuation facilities to the limits of their capacities.

(2) Landing ships and craft will provide:

(a) Medical service to their own and embarked personnel.

(b) LSTs will provide the major casualty lift from the far-to near-shore.

(3) Combat ships, Auxilliary ships and craft will provide:

(a) Medical service to their own personnel. If overtaxed, they will evacuate to LSTs.

(4) Hospital ships or carriers and Ambulance ships (if and when available) will be used in accordance with evacuation plan.

3. Evacuation

a. The principal task of the Medical Services of the Western Naval Task Force in Operation OVERLORD is that of shore-to-shore evacuation.

b. Medical Services of the Western Naval Task Force in Operation OVERLORD is that of a middle link in the chain of evacuation. The Assault Force constitutes the far-shore link, ETOUSA plus COMNAVEU, the near-shore link.

c. Casualty estimates and available lift is used as a basis of planning.

d. Evacuation policy

(1) Far-shore: Initially - total evacuation of ineffectives except non-transportables.

Later - a 7, 15, 30-day and longer policy, as directed by the Army.

RESTRICTED

(2) Afloat.

See paragraph 2c above.

e. Shore-to-ship phase.

Any boat used in amphibious operations, including DUKWs may be utilized for evacuating casualties from the beach.

Specially designed ambulance boats, or boats converted for exclusive use as ambulance boats will not be available except those from ambulance ships.

All landing boats will carry sufficient first-aid material to effect emergency first aid.

Ineffectives resulting from casualties occurring in the boats during any phase will be retained in the boats for seaward evacuation when practicable.

Boat crews of landing boats will be responsible for casualty handling and emergency first aid in their boats.

f. Ship phase.

LSTs will provide the estimated required casualty lift. All LSTs of the Western Naval Task Force will be utilized for shore-to-shore casualty evacuation.

The average casualty lift per LST per trip is 150. Under exceptional circumstances, this may be exceeded. Medical materiel for casualties will be provided each LST initially and maintained through a system of resupply at near-shore hards.

APAs will provide casualty lift as the military situation permits.

LCI(L)s will carry ambulatory cases.

Hospital Carriers will be available after D plus 1.

Hospital Ships will be used for evacuation from major ports to the United States.

g. Casualty Estimates.

Allover casualty estimates until normal land warfare develops:

Sick and non-battle casualties - .17 of 1%.

Battle casualties:

Army - 5 - 8%
Navy - 4 - 8%

If chemical agents are used, a high percentage of casualties may be expected from this cause.

h. General Information.

(a) This plan is designed to coordinate seaward evacuation and to provide maximum available pertinent casualty information to those concerned. It is set up conforming with Force Organization and will utilize facilities already provided.

(b) Paragraph 3 of ANNEX "N" (Medical Plan) lists the broad principles of seaward casualty evacuation.

(c) No reports of casualties will be forwarded to the Navy Department by units of this command. From the reports submitted to him, ComNavEu will prepare and forward all reports required by the Navy Department.

(d) Special medical department representatives will be on duty at the 3 main near-shore casualty evacuation ports for the purpose of receiving casualty evacuation reports

from ships. These reports will be forwarded as directed later in this ANNEX.

(e) Medical Annexes of Task Forces under the Western Naval Task Force will include such additional detailed information as may be required to accomplish the plan.

1. Casualty and Personnel Reports and Records.

(1) Reports will be submitted in accordance with following tables.

Report No. 1 NUMERICAL REPORT BY CASUALTY EVACUATION SHIPS (Secret).

From: 1. LSTs.
2. LCI(L)s.
3. Hospital Carriers.
4. APAs.
5. Other ships under Shuttle Control.

To: Shuttle Control.

Transmitted by: Signal or voice.

When submitted: Prior to departure from far-shore.

Information required: a. Total wounded on board.
b. Number of stretcher cases.
*c. Other evacuees, non-casualty.

Purpose: To assist in prompt handling of casualties at the debarkation ports.

* NOTE: Reports indicated by asterisks are personnel reports. Their compilation is not a medical department responsibility but is included in this ANNEX for the convenience of commanding officers.

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Report No. 1A NUMERICAL REPORT OF CASUALTIES EVACUATED (Secret).

From: Shuttle Control reports by individual ships for entire convoy.

To: Appropriate Commander-in-Chief, Home Command (TURCO).

Transmitted by: Despatch.

When submitted: Upon departure from far-shore.

Information required: Same as report No. 1.

Purpose: Same as report No. 1.

- -

Report No. 2 RUNNING RECORD OF BATTLE CASUALTIES (Confidential).

From: 1. LSTs.
2. LCI(L)s.
3. Hospital Carriers.
4. APAs.
5. AKAs.

To: 1. ORIGINAL: Local Navy representative at debarkation point for transmission to ComNavEu.
2. DUPLICATE: Local Navy representative at debarkation point for transmission to ComSerFor122. (Ship's record)
3. TRIPLICATE Local Army representative at debarkation point.

Transmitted by: Hand.

When submitted: Upon return to near-shore with evacuated casualties.

Information required: Instructions on form. NOTE: ORIGINAL TO COMNAVEU.

Purpose: To provide a record containing pertinent information for reports, statistics and casualty handling.

(NOTE: A detail of this report is included in Appendix H.)

Report No. 3 EMERGENCY PERSONNEL CASUALTY REPORT (Secret).

From: Any ship.

To: Naval Commander Western Task Force.
Info.: Assault Force and intervening commanders.

Transmitted by: Signal or despatch.

When submitted: When ship's efficiency is reduced.

Information required: a. Ship's complement - dead.
b. Ship's complement - wounded.
*c. Ship's complement - missing.

Purpose: Personnel situation of ship when fighting effectiveness is materially reduced by casualties.

*NOTE: Report indicated by asterisk is a personnel report. Compilation is not a medical department responsibility but is included in this ANNEX for the convenience of commanding officers.

Report No. 4 ADMINISTRATIVE BATTLE CASUALTY REPORT (Secret).

From: All ships returning to near-shore.

To: 1. Local Navy representative at debarkation point for transmission to ComNavEu.
2. Local Navy representative at debarkation point for transmission to ComSerFor 122 (Ship's record).
3. Local Army representative at debarkation point.

Transmitted by: Hand.

When submitted: Upon arrival at near-shore.

Information required: By name and service number:
a. Ship's complement - casualties:
1-dead; 2-wounded; *3-missing.
*b. Ship's complement - non-casualties transferred ashore for other reasons; indicate:
1 - Near-shore) Where directed to report.
2 - far-shore)
c. Not complement: By name, service number and unit if known:
1 - dead; 2 - wounded; *3 - missing after receipt; *4 - other evacuees sent ashore.

Purpose: To provide information for administration, reporting and replacement.

*NOTE: Reports indicated by asterisks are personnel reports. Their compilation is not a medical department responsibility but is included in this ANNEX for the convenience of commanding officers.

Report No. 4A ADMINISTRATIVE BATTLE CASUALTY REPORT (Secret)

From: Far-shore Navy Units.

To: 1. ComNavEu.
2. ComSerFor 122.
3. NOIC (Far-shore).

Transmitted by: Via chain of command to NOIC for transmission to:
1. ComNavEu.
2. ComSerFor 122.

When submitted: Daily.

Information required: By name and service number:
a. Complement - casualties:
Same as a. of report no. 4.
*b. Complement - non-casualties:
Same as b. of report no. 4.
*c. Acquisitions, with or without orders:
Indicate unit to which attached, if known.

Purpose: To provide information for administration, reporting and replacement.

*NOTE: Reports indicated by asterisks are personnel reports. Their compilation is not a medical department responsibility but is included in this Annex for the convenience of commanding officers.

Report No. 5 REPORT OF CASUALTIES

From: All ships and craft.

To: ComNavEu.
Info: ComSerFor 122.

Transmitted by: Despatch or Mailgram.

When submitted: Earliest practicable time.

Information required: For USN ship's complement:
Date.
Full name (surname first).
Rank or rate and service number.
Type of casualty - using following nomenclature:
"Killed in action".
"Died of wounds".
"Injuries received in action".
*"Missing in action".

Purpose: Comply with AlNavs 13 and 162 of 1942.

*NOTE: Reports indicated by asterisks are personnel reports. Their compilation is not a medical department responsibility but is included in this Annex for the convenience of commanding officers.

Report No. 6 REPORT OF CASUALTIES

From: All ships and craft.

To: ComNavEu.
Info: ComSerFor 122.

Transmitted by: Letter.

When submitted: Earliest practicable time.

Information required: For USN ship's complement:
Date.
Place.
Full name (surname first).
Rank or rating and service number.
Diagnosis:
"Result of enemy action" or "not result of enemy action" as applicable.
Prognosis: "Fatal", "probably fatal", "serious", "favorable".

Disposition: "Died", "retained on board", "transferred".

Purpose: Comply with para. 3518, Manual of the Medical Department.

(2) Ships and stations shall number these reports consecutively by classes of reports.

(3) Commander, Service Force 122 will furnish summarized reports when directed showing total U.S. Navy dead, wounded and missing.

(4) The Commanding Officers of individual ships are responsible that these reports, including both medical and non-medical personnel accounting are transmitted at the required times.

4. Geneva Conference.

a. This Force will comply with such articles of the Geneva Conference as are applicable to the operation.

b. All medical personnel, male and female, both officer and enlisted including medical, dental, hospital and nurse corps will carry on appropriately marked identification card (N Nav 546) on their person at all times.

c. Medical personnel will NOT carry firearms.

d. Medical personnel shall not be assigned any military duties other than those pertaining to the Medical Department.

e. All medical personnel in combat areas will wear the Geneva Red Cross arm brassard.

f. No unit, other than a medical unit, will display the Geneva Red Cross or any symbol representing or resembling it.

5. Burials.

a. The remains of dead occurring afloat, between near-and far-shores, will be retained on board for burial ashore. Burials at sea will be held to the extreme minimum and will be done only when it is impracticable to retain on board for delivery ashore.

b. Remains of dead occurring in landing craft enroute between ship and beach will be taken ashore for burial and not returned to ships.

c. Remains of dead ashore (far-shore) will be placed in custody of U.S. Army Graves Registration Service or Shore Party Commander for burial.

d. Remains of dead (near-shore) will be placed in custody of U.S. Army Graves Registration Service on the near-shore.

e. The same procedure in handling remains will apply to all personnel, i.e., by U.S. Army Graves Registration Service.

f. In burials at sea, all practical means will be taken to identify the dead. These include the use of:

Recognition by friends, descriptive sheet in health record, taking of finger prints, metal identification tags, dental abstracts, marks in clothing, personal effects. The unidentified dead will, if possible, have prints made of all ten fingers. These prints will be forwarded with records of dead. Included on record of prints will be approximate height, weight, color of hair, marks and scars and other identifying features.

g. Personal effects (and records of dead buried at sea) of all dead in ships will be inventoried, placed in the custody of, and receipted for by the Army Officer at Port of Debarkation receiving wounded.

h. Disposition of metal identification tags.

(1) Where burial is at sea:

One (1) tag with remains, the other tag with records.

(2) Where remains are taken ashore for burial:

Both tags accompany remains.

/s/ A. G. KIRK
Rear Admiral, U. S. Navy,
Naval Commander Western Task Force.

APPENDIX J

MEDICAL MATERIEL IN LSTs

Contents

Part 1 - Medical Materiel - General . . . . . Pages J-2 - J-10

Part 2 - Itemized Contents of Special Units . . . . . Pages J-11

NOTE: Specific reference, in the text of the report, is made to this Appendix as follows:

Pages 10 - 11 (PART II, paragraph 35.1, ii.)
Page 11 (PART II, paragraph 35.2, iv.)

MEDICAL MATERIEL IN LSTs.

The average stock level of medical materiel in each LST for the operation is hereinafter given. This listing presents a reasonably accurate picture when viewed in the light of the vicissitudes of acquisition, distribution, dispersion and other operational problems.

PART 1

Column 1 - Authorized LST commissioning allowance (as revised 27 October 1943).

Column 2 - Operational increase (quantity) to items in commissioning allowance. (Authorized by COMNAVEU.)

Column 3 - Operational additions (item and quantity) to commissioning allowance. (Authorized by COMNAVEU.)

Column 4 - Special materiel. (Authorized by COMINCH.)

Column 5 - Items requested in original estimates but not available for the operation.

PART 2

Itemized contents of Special Units A - B - C and Beach Bag. (Items 349 - 350 - 351 and 340 respectively, of Part 1.)

ITEM No.	STOCK No.	DESCRIPTION	UNIT	COLUMN 1	2	3	4	5
		CLASS 1 - SUPPLIES						
		DRUGS, CHEMICALS AND BIOLOGICALS						
1	1-035	ACID, BORIC	1 lb ctn	2				
2	1-070	ACID, SALICYLIC	¼ lb ctn	4				
3	1-110	ALCOHOL	⅛ gal tin	8	4			
4	1-140	AMYL NITRITE, pearl	12 in box	1				
5	1-165	BISMUTH SALICYLATE, in oil	2 oz bot	4				
6	1-175	BISMUTH SUBNITRATE	¼ lb bot	4				
7	1-185	CALAMINE, PREPARED	¼ lb ctn	4				
8	1-195	CALCIUM HYDROXIDE	vial	12				
9	1-200	CAMPHOR	¼ lb bot	6				
10	1-245	CHOLOROFORM	¼ lb bot	4				
11	1-295	DEXTROSE, 50% sol.	50cc vial	6				
12	1-300	DISTILLED WATER	10cc amp	60	108			
13	1-325	ETHER	¼ lb tin	10	10			
14	1-345	EUGENOL	1 oz bot	1				
15	1-360	FL.EXT.CASCARA SAGRADA,AROM	1 pt bot	10				
16	1-375	GLYCERIN	2½ lb tin	2				
17	1-390	HOMATROPINE HYDROCHLORIDE 1/50 gr. COCAINE HYDROCHLORIDE 1/50 disc	25 in tube	1				
18	1-405	JELLY, lubricating, sterile	4 oz tube	2				
19	1-415	JELLY, tannic acid 3/4 oz tube	2 in pkg	10				
20	1-425	LINIMENT, camphor and soap	jar	6				
21	1-440	MAGNESIUM SULPHATE	2½ lb pkg	10				
22	1-445	MENTHOL	1 oz bot	3				
23	1-480	METHYL SALICYLATE	1 lb bot	4				
24	1-495	MORPHINE TARTRATE	syrette	175				
25	1-510	OIL, CASTOR	1 qt bot	4				
26	1-515	OIL, COD LIVER	1 pt bot	1				
27	1-545	OINT. MERCURIAL, STR.	½ lb jar	1				
28	1-550	OINT. MERCUROUS CHL.MILD	tube	500				
29	1-555	OINT. SULPHUR	1 lb jar	6				
30	1-560	OINT. YEL.MER.OX. 1%	1 dr tube	4				
31	1-565	OINT. ZINC OXIDE	1 lb jar	5				
32	1-575	PETROLATUM, liquid	1 qt tin	10				
33	1-585	PETROLATUM, white	1 lb can	10	10			
34	1-590	PHENOL	1 lb bot	2	2			
35	1-660	POTASSIUM PERMANGANATE	¼ lb bot	2				
36	1-670	PROCAINE HYDROCHLORIDE	5 gm bot			2		
37	1-675	PROCAINE HYDROCHLORIDE	100 mgm amp	20				
38	1-680	PROCAINE HYDROCHLORIDE	150 mgm amp	20				
39	1-725	SOAP, hard (Castile)	1 lb pkg	4				
40	1-730	SOAP, SOFT	2 lb jar	2				
41	1-745	SODIUM BICARBONATE	1 lb ctn	10				
42	1-775	SODIUM CITRATE, 2½% sol.	50cc vial	6				
43	1-800	SODIUM PERBORATE	¼ lb bot	2				
44	(1-850)	SOL. OF CRESOL. sapon	¼ lb tin	3				
45	1-855	SOL. OF EPINEHRINE HCL	1 oz bot	2				
46	1-860	SOL. OF EPINEHRINE HCL	1cc amp	12				
47	1-865	SOL. FORMALDEHYDE	1 lb bot	6				
48	1-870	SOL. POSTERIOR PITUITARY	1cc amp	6				
49	1-875	SOL. POTASSIUM ARSENITE	¼ lb bot	1				
50	1-880	SPT. OF AMMONIA, AROM.	¼ lb bot	12				
51	1-885	SPT. OF AMMONIA, AROM. tube	4 in pkg	2				
52	1-915	ATROPINE SULPHATE, 0.0006 gm	20 in tube			2		
53	1-920	COCAINE HYDROCHLORIDE, 0.01 gm	20 in tube	1				
54	1-945	MORPHINE SULPHATE 0.008 gm	20 in tube	2				
55	1-950	MORPHINE SULPHATE 0.032 gm	20 in tube	1				
56	1-955	MORPHINE SULPHATE 0.016 gm and ATROPINE SULPHATE 0.0004 gm	20 in tube	2				

ITEM No.	STOCK No.	DESCRIPTION	UNIT	COLUMN 1	2	3	4	5
57	1-960	SCOPOLAMINE HYDROBROMIDE .0003 gm	20 in tube	2				
58	1-965	STRYCHNINE SULPHATE 0.002 gm	20 in tube	1				
59	1-970	ACETOPHENETIDIN 0.324 gm	100 bot	2				
60	1-975	ACID, ACETYLSALICYLIC 0.324 gm	100 bot	10				
61	1-980	ACID, ACEYTISALICYLIC 0.324 gm	1000 bot	2				
62	1-985	ALKALINE AND AROMATIC (SEILER'S)	100 bot	6				
63	1-995	CODEINE SULPHATE 0.0162 gm	100 bot	2				
64	1-1015	EXT. CASCARA S. GRADA.0.259 gm	100 bot	20				
65	1-1020	FERROUS SULPHATE 0.324 gm	100 bot	2				
66	1-1025	IPECAC AND OPIUM 0.324 gm	100 bot	6				
67	1-1030	MERCUROUS CHLORIDE, mild .032 gm.	100 bot	2				
68	1-1040	OPIUM & GLYCYRRHIZA COMP	1000 bot	5				
69	1-1045	PHENOBARBITOL 0.0324 gm	100 bot	4				
70	1-1055	PROCAINE HYDROCHLORIDE 0.074 gm	100 bot	2				
71	1-1061	QUININE SULPHATE 0.324 gm	100 bot	1				
72	1-1070)	SODA MINT	100 bot	6				
73	1-1080	SOD. CHLORIDE 0.85 gm CP	100 bot	4				
74	1-1085	SOD. CHLORIDE 0.648 gm	5000 bot	2				
75	1-1090	SOD. SALICYLATE 0.324 gm	100 bot	4				
76	1-1115	TALC, purified	1 lb ctn	2				
77	1-1150	TR. BENZOIN, COMP	4 oz bot	1				
78	1-1180	TR. OF IODINE	2 oz bot	10				
79	1-1185	TR.OF IODINE, MILD, 10cc vial	3 in pkg	20				
80	1-1200	TR. OPIUM CAMPHORATED	1 pt bot	4				
81	1-1210	TRYPARSAMIDE	3 gm amp	5				
82	1-1225	WAX, white	1 lb pkg	2				
83	1-1231	WHISKEY	1 qt bot	12				
84	1-1235	WOOL FAT, anhydrous	1 lb tin	2				
85	1-1240	XYLOL	100cc bot	1				
86	1-1250	ZINC OXIDE	1 lb ctn	2				
		CLASS 2 - SUPPLIES SURGICAL						
87	2-005	ADAPTER, glass.	one	2	2			
88	2-015	APPLICATOR, wood.	500 in bdl	3				
89	2-020	ATOMIZER, hand, with bulb	one	4				
90	2-030	BADGE, arm, red cross	one	2	42			
91	2-070	BANDAGE, COTTON ELASTIC 2"	one	12				
92	2-075	BANDAGE COTTON ELASTIC 3"	one	10				
93	2-085	BANDAGE, gauze, 1"	doz	20				
94	2-090	BANDAGE, gauze, 2"	doz	24				
95	2-091	BANDAGE, gauze, 2", camouf.	doz			5		
96	2-095	BANDAGE, gauze, 3"	doz	12				
97	2-111	BANDAGE, gauze, 3", camouf.comp.	one			36		
98	2-115	BANDAGE, plaster of Paris, 3"	one			120		
99	2-125	BANDAGE, suspensory	one	6				
100	2-130	BANDAGE, triangular, comp.	one	6				
101	2-135	BATH, eye	one	5				
102	2-140	BATTERY, dry (for flashlight)	one	2	168			
103	2-145	BLADE, knife, detach. #10	6 in pkg			1		
104	2-155	BLADE, knife, detach. #12	6 in pkg			1		
105	2-175	BLADE, razor, safety.	5 in pkg	1				
106	2-185	BOX, boat	one	1				
107	2-190	BRUSH, hand, surgeon's.	one	2				
108	2-265	CATHETER, rubber, soft, 14F	one	2				
109	2-275	CATHETER, rubber, soft, 18F	one	2				
110	2-345	COTTON, absorbent	1 lb roll	30				
111	2-375	CUP, sputum, paper.	50 in pkg	4				
112	2-390	DRESSING, battle, large	one	50				
113	2-391	DRESSING, battle, large, camouf.	one			200		
114	2-393	DRESSING, battle, med. camouf.	one			200		
115	2-395	DRESSING, battle, small	one	75				
116	2-396	DRESSING, battle, small, camouf.	one			200		

ITEM No.	STOCK No.	DESCRIPTION	UNIT	COLUMN 1	2	3	4	5
117	2-400	DRESSING, head, adjust. comp.	one	30				
118	2-415	FORCEPS, dressing	one	3				
119	2-425	GAUZE, plain	25 yd roll	20		5		
120	2-450	GLOVES, rubber, op. 7½	pair	3	3			
121	2-455	GLOVES, rubber, op. 8	pair			3		
122	2-460	GLOVES, rubber, op. 8½	pair	3				
123	2-525	LAVAGE TUBE, soft rubber.	one	2				
124	2-540	MEDICINE GLASS.	one	12				
125	2-545	MUSLIN.	yard	100	10			
126	2-555	NEEDLE, hypo, 3/4", 23 ga..	doz	3	2			
127	2-580	NEEDLE, hypo, 2", 18 ga..	doz	1	1			
128	2-655	NEEDLE, spinal punct. 3½", 18 ga.	one			1		
129	2-660	NEEDLE, spinal punct. 3½", 20 ga.	one			1		
130	2-725	NEEDLE, sut. surg. 3/8 cir. cut edge 4. .	6 in pkg	2				
131	2-735	NEEDLE, sut. surg. 3/8 cir. cut. edge 12.	6 in pkg	1				
132	2-740	NEEDLE, sut. surg. 3/8 cir. cut. edge 16	6 in pkg	1				
133	2-780	NEEDLE, sut. ½ cir. taper pt. 3 (Mayo). .	6 in pkg	1				
134	2-785	NEEDLE, sut. ½ cir. taper pt. 5 (Mayo). .	6 in pkg	1				
135	2-795	NOZZLE, irrigation, urethral.	doz	1				
136	2-801	PACKET, first aid (with sulf.).	one	50				
137	2-810	PAPER, paraffined	12 lb roll	1				
138	2-815	PILLOWCASE, rubber.	one	1				
139	2-820	PINS, assorted.	paper	2				
140	2-825	PINS, safety, large	doz	5				
141	2-830	PINS, safety, medium.	doz	5				
142	2-835	PLASTER, adhes. 2" x 5 yd	spool	24				
143	2-836	PLASTER, adhes. 2" x 5 yd, camouf..	spool			24		
144	2-840	PLASTER, adhes. 12" x 5 yd.	roll	4				
145	2-860	SEWING OUTFIT	one	1				
146	2-865	SHADE, eye, single.	one	4				
147	2-870	SHEET, rubber	one	1				
148	2-875	SHUT-OFF, screw type.	one	1				
149	2-880	SHUT-OFF, spring type	one	1				
150	2-900	SPECTACLES, smoked glass.	one	6				
151	2-920	SPLINT, arm	one	1				
152	2-925	SPLINT, arm, hinged ring.	one	1				
153	2-930	SPLINT, Basswood for.	12 in set	4				
154	2-935	SPLINT, leg (Thomas).	one	1				
155	2-940	SPLINT, leg, half ring.	one	1				
156	2-950	SPLINT, strap, adjust. tract.	one	2				
157	2-955	SPLINT, strap and buckle.	one	2				
158	2-960	SPLINT, SUPPORT AND FOOT REST	one	1				
159	2-970	SPLINT, wire mesh for	piece			2		
160	2-1015	SUTURE, dermal, #000.	tube	24	12			
161	2-1020	SUTURE, dermal, #0.	tube	24	12			
162	2-1025	SUTURE, dermal, #3.	tube			12		
163	2-1055	SUTURE, silk, in needle, #0	tube	12				
164	2-1060	SUTURE, silk, in needle, #2	tube	12				
165	2-1160	SUTURE, sur. gut. untrt. non-boil 00.	tube	12	12			
166	2-1165	SUTURE, sur. gut. untrt. non-boil 0	tube			12		
167	2-1170	SUTURE, sur. gut. untrt. non-boil 1	tube			12		
168	2-1175	SUTURE, sur. gut. untrt. non-boil 2	tube	12	12			
169	2-1180	SUTURE, sur. gut. mild trt.non-boil,No.00	tube	12				
170	2-1190	SUTURE, sur. gut. mild trt. non-boil,No.1	tube	6				
171	2-1195	SUTURE, sur. gut. mild trt. non-boil,No.2	tube	12				
172	2-1230	SYRINGE, intramus, 2cc.	one	6	2			
173	2-1240	SYRINGE, intramus, 10cc	one	3	2			
174	2-1245	SYRINGE, intramus, 20cc	one	3	2			
175	2-1265	SYRINGE, p.pipette with bulb.	one	24				
176	2-1290	TAPELINE	one	1				
177	2-1300	THERMOMETER, clinical	one	6				
178	2-1310	TOURNIQUET, web	pkg	12				
179	2-1315	TONGUE DEPRESSOR, wood.	500 in pkg	3				
180	2-1320	TOWELING, crash	yard	50				

ITEM No.	STOCK No.	DESCRIPTION	UNIT	COLUMN 1	2	3	4	5
181	2-1330	TUBE, drip, glass	one	2				
182	2-1340	TUBE, glass, window	one	2				
183	2-1345	TUBE, glass "Y"	one			1		
184	2-1350	TUBE, rectal.	one	2				
185	2-1360	TUMBLER	one	5				
186	2-1435	WIRE, hypo needle	doz	3				
		CLASS 3 - EQUIPMENT						
		SURGICAL INSTRUMENTS AND APPLIANCES						
187	3-045	CASE, pocket.	one	1				
188	3-270	FORCEPS, hemo. curv. 5½".	one	2				
189	3-285	FORCEPS, hemo. str. 5½.	one	6				
190	3-300	FORCEPS, hemo. str. mosquito, 5".	one	2				
191	3-345	FORCEPS, splinter, 3½	one	1				
192	3-370	FORCEPS, tissue, 2 x 3 teeth.	one	2				
193	3-470	LOUPE, binocular	one	1				
194	3-530	NEEDLE HOLDER, 7"	one	1				
195	3-545	OUTFIT, emergency, surgical	one			1		
196	3-555	POUCH, Hospital Corps, large.	one	1				
197	3-575	PROBE, silver, with eye, 5"	one	1				
198	3-590	RAZOR, safety	one	1				
199	3-755	SCISSORS, str. 1 pt sharp, 5½".	one	1				
200	(3-765)	SHEARS, bandage, ang. 7".	one	1				
201	3-855	SPUD, eye, flat form.	one	1				
		CLASS 4 - SUPPLIES						
		SPECIAL DEPARTMENT						
202	4-095	BOTTLE, 1 fl. oz.	doz	2				
203	4-100	BOTTLE, 2 fl. oz.	doz	2				
204	4-105	BOTTLE, 4 fl. oz.	doz	4				
205	4-110	BOTTLE, 8 fl. oz.	doz	2				
206	4-115	BOTTLE, 16 fl. oz.	doz	1				
207	4-125	BOX, powder, rectangular.	doz	3				
208	4-160	CAN OPENER	one	1				
209	(4-250)	CORKS, bottle, asst'd	gross	1				
210	4-255	CORKSCREW	one	1				
211	4-325	ENVELOPE, drug.	100 in pkg	5				
212	4-335	FILE, triangular, small	one	1				
213	4-460	FLASK, Erlenmeyer, 100-120cc.	one	1				
214	4-470	FLASK, Erlenmeyer, 500cc.	one	3				
215	4-520	FUNNEL, glass, 5"	one	2				
216	4-625	JAR, shelf, ointment, 500 gm.	one	6				
217	4-655	LAMP, alcohol, metal.	one	1				
218	4-705	MEASURE, glass, grad, 5cc	one	1				
219	4-710	MEASURE, glass, grad, 30cc.	one	2				
220	4-730	MEASURE, glass, grad, 500cc	one	2				
221	4-785	PAPER, filter, round, 10"	pkg	2				
222	4-905	POT, oint. glass, 30 gm	doz	2				
223	4-955	ROD, stir. glass, pharm..	one	2				
224	4-970	SHEARS, 6".	one	1				
225	4-1055	TUBE, test, 13 x 100 mm	doz	1				
226	4-1065	TUBE, test, 16 x 150 mm	doz	1				
227	4-1090	TUBING, rub. 1/8" d. 1/32" wall	12' length	1				
228	4-1105	TUBING, rub.¼"d. 1/16" wall	12' length	1	1			
229	4-1125	TWINE	ball	1				
230	4-1145	WICK, for alcohol lamp.	one	1				
		CLASS 5 - EQUIPMENT						
		SPECIAL DEPARTMENT						
231	5-005	APPARATUS SUPPORT, 3 ring	one	1				
232	5-205	HOT PLATE, elect.	one	1				
233	5-230	MORTAR AND PESTLE, glass, 2-3/4".	one	1				
234	5-240	MORTAR AND PESTLE, Wgwood, 7"	one	1				

ITEM No.	STOCK No.	DESCRIPTION	UNIT	COLUMN 1	2	3	4	5
235	5-310	SPATULA, 7½cm	one	1				
236	5-320	SPATULA, 15 cm	one	1				
		CLASS 6 - EQUIPMENT HOSPITAL AND NURSING						
237	6-015	BASIN, dressing	one	1				
238	6-020	BASIN, pus	one	1				
239	6-035	BEDPAN	one	1	7			
240	6-055	BUCKET, with cover	one	1				
241	6-075	CLOCK, small, with sec.hand	one	1				
242	6-095	FLASHLIGHT, hand w/out bat	one	1				
243	6-115	HONE	one	1				
244	6-120	IRRIGATOR	one	1				
245	6-130	JAR, dressing	one	2				
246	6-145	LITTER, metal pole	one	12			200	
247	6-185	PITCHER, 1 qt	one	1				
248	6-190	PITCHER, 3 qt	one	1				
249	6-205	SAUCEPAN	one	1				
250	6-235	SPOON, table	one	1				
251	6-265	TOWEL, hand	one	12				
252	6-275	TRAY, surg. inst. lg.	one	1				
253	6-280	TRAY, surg. inst. small	one	1				
254	6-290	URINAL	one	1	7			
		CLASS 11 - SUPPLIES DENTAL						
255	11-825	DENTAL ANALGESIC, local	1 oz bot	1				
		CLASS 13 - SUPPLIES FIELD						
256	13-025	BASIN, hand, rubber, collaps	one			2		
257	13-130	PAD, heat, chemical	one			100		
258	13-135	PAD, heat, chem. refill	one			300		
259	13-175	SOAP, hand	cake			10		
		CLASS 14 - EQUIPMENT FIELD						
260	14-250	BLANKET, combat, canvas	one			80		
261	14-255	BLANKET, field	one			600		
		CLASS S1 - SUPPLIES DRUGS, CHEMICALS AND BIOLOGICALS						
262	S1-040	ALUMINUM HYDROXIDE GEL	6 oz bot	5				
263	S1-065	AMMONIA WATER, STRONGER	1 pt bot	1				
264	S1-080	AZOCHLORAMID, buf. sal. mixt.	1 oz bot	1				
265	S1-100	AZOCHLORAMID, in triacetin	1 qt bot	1				
266	S1-133	BENZEDRINE INHALER	one	5				
267	S1-135	BENZYL BENZOATE	1 lb bot	1				
268	S1-1001	GAS GANGRENE ANTITOXIN	vial			20		
269	S1-1130	PENICILLIN, sod.cryst.100,000 OxU	ampul			6		
270	S1-1945	SERUM ALBUMIN	pkg			30		
271	S1-2040	TET.ANTITOXIN, USP,1500 U	vial			40		
272	S1-2094	TET.TOXOID, Alum prec.	50cc vial			5		
273	S1-2290	BRANDY	2 oz bot	60				
274	S1-2295	CAFFEINE-SOD. BENZOATE,INJ	2 cc amp	12				
275	(S1-2365)	CORAMINE 25% sol	1½cc amp	5				
276	S1-2370	DETERGENT EMULSION	1 pt bot	2	4			
277	S1-2385	DICHLORAMINE T in triacetin	1 pt bot	2				
278	(S1-2618)	CYLINDER, oxygen filled,750 or 1500 gal.cap. (USA Stock No. 77860-77870)	one					2
279	S1-2650	HYDROGEN PEROXIDE, 8%	1 pt bot	2				
280	S1-2900	MAPHARSEN	.06gm amp	20				
281	S1-2920	MER.CHLORIDE,CORROSIVE	½ lb bot	1				

ITEM No.	STOCK No.	DESCRIPTION	UNIT	COLUMN 1	2	3	4	5
282	S1-3040	MERTHIOLATE TINCTURE	1 pt bot	2				
283	S1-3100	METACRESYLACETATE	1 oz bot	1				
284	S1-3280	NEOSYNEPHRINE HCL, 1% sol	15cc vial	1				
285	S1-3310	NIKETHAMIDE, 25% sol	1½cc amp			50		
286	S1-3355	OINT: ANAESTHETIC	1 oz tube	4				
287	S1-3361	OINT: BAL	½ oz tube	96	100			
288	S1-3362	OINT. Boric Acid	¼ oz tube	24	24			
289	S1-3365	OINT. Butyn, opthalmic, 2%	1 dr tube	4				
290	S1-3375	OINT. Protective (S461)	3 oz tube	90	100			
291	S1-3378	OINT. Sulfadiazine Sod. 5%	4 oz jar	1				
292	S1-3440	PENTABARBITOL SOD, 1½gr caps	500 bot			1		
293	S1-3450	PENTATHAL SODIUM	.5 gm amp	6	96			
294	S1-3531	PLASMA, human,dried (500cc)	pkg	10	12			
295	S1-3565	POWDER BLEACHING, HTH	3-3/4 lb ctn	1				
296	S1-3600	PROPADRINE, HCL, 3/8 gr caps	25 bot	1				
297	(S1-3640)	PROSTIGMINE METHYLSULPHATE sol	1cc amp	1				
298	S1-3740	SODIUM AMYTAL. 3 gr caps	40 bot	1				
299	S1-3770	SOD. FORMALDEHYDE SULFOX	10 gm amp	2				
300	S1-3785	SOLUTION ANAESTHETIC	1 oz bot	1				
301	S1-3790	SOL.DEXTROSE: 5% in Nor.Sal.1000cc	6 in case	1	4			
302	S1-3795	SOL. NORMAL SALINE, 1000cc	6 in case	1	1			
303	S1-3805	SULFADIAZINE, powdered	¼ lb tin	1				
304	S1-3808	SULFADIAZINE, 24 1 gm tabs	pkg			20		
305	S1-3810	SULFANILAMIDE, powdered	¼ lb bot	2				
306	S1-3813	SULFANILAMIDE,pwd, 5 gm packet	25 in pkg	1				
307	S1-3815	SULFATHIAZOLE, powdered	¼ lb bot	2				
308	S1-3990	PENZEDRINE SULFATE, 5 mgm	100 bot	1				
309	S1-4011	APC caps	1000 bot	2				
310	S1-4020	ATABRINE, 0.1 gm	100 bot	8				
311	S1-4021	ATABRINE, 0.1 gm	1000 bot			1		
312	S1-4030	AZOCHLORAMID,sal.mix. 0.5508 gm	100 bot	2				
313	S1-4260	PLASMOCHIN, 0.02 gm	25 bot	1				
314	S1-4310	SILVER PROTEIN MILD,0.299 gm	100 bot	20				
315	S1-4311	SILVER PROTEIN STRONG 0.150 gm	100 bot	10				
316	S1-4312	SOD. ALURATE, 0.115 gm	100 bot	1				
317	S1-4315	SOD. BICARBONATE. 0.648 gm	100 bot	10				
318	S1-4316	SOD. BICARBONATE, 0.648 gm	1000 bot	2				
319	S1-4335	SULFADIAZINE, 0.5 gm	500 bot	2	2			
320	S1-4336	SULFADIAZINE, 0.5 gm	100 bot	5				
321	S1-4338	SULFAGUANADINE, 0.5 gm	100 bot	4				
322	S1-4380	SULFATHIAZOLE, 0.5 gm	500 bot	4				
323	S1-4420	THIAMIN CHLORIDE, 5 mgm	50 bot	2				
324	S1-4630	VITAMINS A & D nat. in oil	50cc bot	2				
325	S1-4633	VITAMINS, Multiple	100 bot	4				
326	S1-4780	ZEPHIRAN CHLORIDE TINCT	4 oz bot	2				
327	S1-4790	ZEPHIRAN CHLORIDE SOL	4 oz bot	2				

CLASS S2 - SUPPLIES
SURGICAL

ITEM No.	STOCK No.	DESCRIPTION	UNIT	COLUMN 1	2	3	4	5
328	S2-025	BAG, comb. water or ice	one	2				
329	S2-1480	POUCH, HC, small, empty	one	1				
330	S2-1550	SHEET WADING, cotton, 32" x 6 yd. . . .	24 in pkg			1		
331	S2-2458	TUBE, DUODENAL, 14F, complete	one			1		
		CLASS S3 - EQUIPMENT						
		SURGICAL INSTRUMENTS AND APPLIANCES						
332	S3-045	AIRWAY, small	one			1		
333	S3-046	AIRWAY, large	one			1		
334	S3-1272	SHEARS, plaster of Paris	one					1
		CLASS S4 - SUPPLIES						
		SPECIAL DEPARTMENT						
335	S4-466	PENCIL DERMATOGRAPHIC	one	2				
		CLASS S6 - EQUIPMENT						
		HOSPITAL AND NURSING						
336	S6-692	LITTER, canvas, complete	one	1				
		CLASS S7 - SUPPLIES						
		OFFICE						
337	S7-300	TRTMT OF CASUALTIES FROM CHEMICAL AGENTS	one	1				
		CLASS S13 - SUPPLIES						
		FIELD						
338	S13-037	BLANKET, paper, waterproof	one			100		
339	S13-451	INSECTICIDE POWDER	2 oz pkg			24		
340	S13-468	MEDICAL RESUPPLY UNIT, for beach battalion (BEACH BAG) (For contents see PART 2)	one				12	
		CLASS S14 - EQUIPMENT						
		FIELD						
341	S14-020	BAG, water, (Lyster)	one			6		
		CLASS NL 1 - SUPPLIES						
		DRUGS, CHEMICALS AND BIOLOGICALS						
342	NL 1	AMINMOPHYLLINE, NNR, intravenous use, 0.24 gm	24 in box			1		
343	NL 1	ATROPINE SULFATE 1/200 gr ophthalmic discs.	12 in tube			12		
344	NL 1	HOMATROPINE HYDROBROMIDE, 1/250 gr. ophthalmic discs	12 in tube			12		
345	NL 1	FLUORESCEIN, 1/250 gr. ophthalmic discs	12 in tube			12		
346	NL 1	SOLUTION, INSTRUMENT STERILIZING, Bard Parker	1 qt bot					4
347	NL 1	WHOLE BLOOD (Blood bank) 1 pint containers with fittings except tubing and injection needle	one			10		
		CLASS NL 2 - SUPPLIES						
		SURGICAL						
348	NL 2	DRESSING, burn, sterile, Tulle gras approx 3½" squares, 24 in box.	box					25
349	NL 2	SPECIAL UNIT A - Case, emergency SURGICAL DRESSING (Contents in PART 2.)	one				8	

CLASS NL 2 - SUPPLIES (Cont'd)
SURGICAL

ITEM No.	STOCK No.	DESCRIPTION	UNIT	COLUMN 1	2	3	4	5
350	NL 2	SPECIAL UNIT B - POUCH, individual, medical officer, complete. (Contents listed in PART 2)	one				2	
351	NL 2	SPECIAL UNIT C - Pouch, individual, Hospital Corps, complete. (Contents listed in PART 2)	one				20	
352	NL 2	LAMP, plain, bulb, 2 cell flashlight .	one			20		
353	NL 2	LAMP, plain bulb for 4 cell battery to fit head lamp (FSSC 17-L-6365) . . .	one			10		
354	NL 2	SPLINT SET, US Army type, large, (USA Stock No. 97815)	one			1		
355	NL 2	SPONGES, gauze, sterile, 4x4"	20 in pkg			6		
356	NL 2	SPONGES, gauze, sterile, 2x2"	20 in pkg			6		
357	NL 2	STRAP, bunk, elastic	one				200	
358	NL 2	BATISTE, sheeting, rubberized cloth, for surg. operations, field	yard			7½		
		CLASS NL 3 - EQUIPMENT SURGICAL INSTRUMENTS AND APPLIANCES						
359	NL 3	APPARATUS, suction (Levin) or APPARATUS, drainage and suction, (Wangensteen type) modified	one					2
360	NL 3	KNIFE, plaster of Paris, 5"	one					2
361	NL 3	SURGICAL ROLL - US ARMY (Similar to Roll #5 of F.M.U. #36 14-190)	one			1		
		CLASS NL 4 - SUPPLIES SPECIAL DEPARTMENT						
362	NL 4	ROPE, Nylon (Salvaged parachute shroud material)	1½ lb bndl			1		
		CLASS NL 6 - EQUIPMENT HOSPITAL AND NURSING						
363	NL 6	PAJAMA, coat, winter, lg (USA)	one					192
364	NL 6	PAJAMA, trousers, winter, lg. (USA) . . .	one					192
365	NL 6	LANTERN, (headlight type) battery operated, 4 cell, with headband. (FSSC 13-L-7780).	one			6		
366	NL 6	OXYGEN THERAPY OUTFIT (ARCUS) quick coupling system, complete with tubing for nasal masks for multiple administration to 10 patients from 1 tank	one					1
367	NL 6	TOILETS, emergency, portable with paper receptacles	one					7
		CLASS NL 16 - SUPPLIES BLANK FORMS						
368	NL 16	CASUALTY REPORT, running record of, 3 in set, 25 sets in pad	pad			6		
369	NL 16	TAG, emergency medical, U. S. Army form #526	book			10		

PART 2

ITEMIZED CONTENTS OF SPECIAL UNITS A - B - C AND BEACH BAG.

Column A - SPECIAL UNIT A - Listed as Item 349 of Part 1.
Column B - SPECIAL UNIT B - Listed as Item 350 of Part 1.
Column C - SPECIAL UNIT C - Listed as Item 351 of Part 1.
Column BB - "BEACH BAG" - Listed as Item 340 of Part 1.

ITEM No.	STOCK No.	DESCRIPTION	UNIT	COLUMN A	B	C	BB
1	1-495	MORPHINE TARTRATE	syrette	20	15	15	25
2	2-065	BANDAGE, comp. 4", camouf	one	5			
3	2-085	BANDAGE, gauze, 1", camouf	doz	1			
4	2-095	BANDAGE, gauze, 3", camouf	doz	1			
5	2-130	BANDAGE, triangular, camouf	one	3			30
6	2-275	CATHETER, soft rubber, 18F			1	1	
7	2-300	CELLULOSE, 12" wide	roll	1			1
8	2-345	COTTON, 1 lb	roll	2			
9	2-391	DRESSING, battle, lg. camouf	one	10			30
10	2-396	DRESSING, battle, small, camouf	one	6			20
11	2-401	DRESSING, head, adjust, camouf.	one	4			
12	2-825	PINS, safety, large	doz	4			
13	2-835	PLASTER, adhesive, 2" x 5 yd.	roll	1	1	1	2
14	2-930	SPLINT, basswood for, 12 pcs.	set	1			1
15	2-1055	SUTURE, silk, in needle, #0	tube	2			
16	2-1060	SUTURE, silk, in needle, #2	tube	2			
17	2-1310	TOURNIQUET, web	one		1	1	
18	3-045	CASE, pocket	one		1		
19	3-765	SHEARS, bandage, 7"	one		1	1	
20	3-860	STETHOSCOPE	one		1		
21	3-865	SUITCASE, hard fiber, empty (Container for Unit A).	one	1			
22	6-095	FLASHLIGHT, hand w/out bat.	one		1	1	
23	6-125	JACKKNIFE	one		1	1	
24	7-040	BOOK, memorandum	one		1	1	
25	7-150	PENCIL, indelible	one		1	1	
26	13-190	SUTURE, gut, in needle, pl, #0	tube	6			
27	13-195	SUTURE, gut, in needle, ml. trt.#0 . .	tube	6			
28	14-285	CASE, scalpel and forceps	one			1	
29	S1-2290	BRANDY	2 oz bot	10			
30	S1-3530	PLASMA, dried (250cc)	pkg	6			2
31	S1-3812	SULFANILAMIDE, pwd. 5gm pkt	5 in pkg	3	3	3	10
32	S2-1460	POUCH, HC, lg. (empty) (Container for Unit B).	one		1		
33	S2-1480	POUCH, HC, small (empty) (Container for Unit C)	one			1	
34	S4-466	PENCIL, dermatographic	one		1	1	
35	S16-2007	EMERGENCY MEDICAL TAG	book		1	1	3
36	NL-2	BAG, small, waterproof (Inner container for Beach Bag).	one				2
37	NL-2	BAG, large, water repellent (Outer container for Beach Bag)	one				1

APPENDIX K

ARMY - NAVY RESPONSIBILITIES

Initial Evacuation of Casualties from Far to Near Shore.

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 13 (PART II, paragraph 41.2)

HEADQUARTERS
EUROPEAN THEATER OF OPERATIONS
UNITED STATES ARMY

RBL/CEJ/jef
APO 887
19 May 1944

AG 370 05 OpGD

SUBJECT: Initial Evacuation of Casualties from Far to Near Shore: Army/Navy responsibilities.

To: Commanding General, First US Army Group
Commander, US Fleet, Task Force ONE TWO TWO.

1. Letter, this headquarters, dated 27 March 1944, file and subject as above, is rescinded.

2. The following plan for delineation of responsibilities between Army and Navy for the initial evacuation of casualties from far to near shore and plan for Medical Property exchange have been agreed to by this headquarters, First US Army Group, and COMTASFOR ONE TWO TWO.

a. The US Navy will be responsible for:

(1) The conversion and implementation of LSTs for the purpose of transporting casualties on return trips.

(2) The equipping of such converted and implemented LSTs with sufficient quantities of blankets, letters, splints, and medical supplies as are necessary for the proper care of patients carried aboard, and for property exchange on the far shore: and insuring that each such converted and implemented LST carries such equipment at all times.

(3) The prompt exchange of medical property at the far shore, in order not to deplete far shore stocks of medical equipment and supplies. Responsibility for property exchange is further outlined in par 3.

(4) The medical care and treatment of all casualties from the time they are loaded on a ship or craft until they are unloaded from such ship or craft.

(5) The far shore to ship transportation of casualties in cases where DUKWs cannot be used for that purpose.

(6) The unloading of DUKWs, craft, or boats used to transport casualties from the far shore to ship, and the unloading of motor vehicles when casualties are delivered to beached craft by motor transportation.

(7) The delivery of casualties to designated near shore ports or hards at which special holding units will be provided by the Army. In the event that urgent necessity requires the landing of casualties at other than designated ports or hards the Navy will be responsible for timely warning to the Army in order that casualties may be received and property exchanged without delay.

(8) Providing the Army with information of existing Navy medical installations, in appropriate areas, that may be utilized in connection with casualty evacuation.

b. The US Army will be responsible for:

(1) On the far shore --

(a) Medical Services to all personnel landward of the high water mark on landing beaches.

(b) The necessary liaison with the Navy Medical section of shore party required for the evacuation of casualties from the beach.

(c) The provision of sufficient DUKWs (especially allocated to the Medical Department when the military situation permits) for the evacuation of casualties from the beach to ships.

(d) The loading of DUKWs, craft and boats, used to transport casualties from shore to ship, and the loading of motor vehicles when motor transportation is used to deliver casualties to beached craft.

(e) The transportation by DUKWs of casualties from shore to ship, and the transportation by the most suitable motor vehicles available in cases where motor transport may be used to deliver casualties to beached craft.

(f) The provision of sufficient motor transportation facilities for necessary lateral movement of casualties in the vicinity of beaches.

(2) On the near shore --

(a) The establishment and maintenance of such holding medical units, in the immediate vicinity of ports and hards to which converted casualty-bearing LSTs and other casualty-carrying ships have been designated to return, as may be required for the reception of casualties evacuated by ship.

(b) The unloading of all ships and craft at specified docks and hards.

(c) The provision of such additional medical supplies and equipment in the immediate vicinity of designated near shore ports and hards as may be necessary to effect prompt property exchange with returning LSTs and to meet emergency requirements arising in connection with shore to shore evacuation. Responsibility for property exchange is further outlined in par 3.

(d) The provision of small emergency medical units at all hards used by returning US craft to meet the needs of the few casualties who are evacuated by other than designated ships, or to other than designated hards.

(e) The necessary liaison with the Navy required for the reception of casualties without delay on the near shore.

3. PLAN FOR MEDICAL PROPERTY EXCHANGE

a. General Plan

(1) Medical property exchange between LSTs and US Army units at far and near shores will be divided into two phases:

(a) First Phase - The delivery to the far shore by each LST of one exchange unit of medical supplies. The items comprising an exchange unit are listed in par c below. The exchange unit for storage purposes will be considered to be a part of ship's stores, and will be replaced by a similar unit when the ship returns to the near shore. This phase will terminate when 300 such units have been loaded on LSTs. (Automatic item-for-item exchange is not contemplated in this phase).

(b) Second Phase - After 300 exchange units (less any losses sustained en route) have been delivered to the far shore, automatic property exchange, roughly item for item, will be carried out at both the far and near shores. This phase will continue as long as LST's are used for casualty evacuation.

b. Responsibilities -

(1) General. The US Navy will procure the bulk of supplies for property exchange namely litters and blankets. Items other than litters and blankets for that purpose will be procured by the US Army.

(2) First Phase -

(a) The US Navy will initially equip each LST for the first voyage with one exchange unit of supplies. The exchange unit will be in addition to medical supplies necessary for the care of wounded received aboard.

(b) The US Army will make provision for supplying one exchange unit to each LST on arrival at the near shore after the initial trip, until a total of 300 such exchange units have been provided.

RESTRICTED

(c) The US Army will unload the exchange units on the far shore.

(3) Second Phase - At both the near and far shores each service will be responsible for providing exchange on the basis of roughly item-for-item in order that far shore and LSTs' stocks of medical supplies will not be depleted.

c. Composition of Exchange Units of Medical Supplies - Each exchange unit for the first phase will consist of:

Blankets	each	320	(preferably in sets of 8)
Litters	each	100	
Splint Sets	each	4	
Dressings	case	3	
Plasma	box	8	
Splint litter bars	each	24	

By command of General EISENHOWER:

s/ R.B. LOVETT,
Brigadier General, USA,
Adjutant General.

APPENDIX L

ARMY - NAVY AUTOMATIC PROPERTY EXCHANGE MATERIEL (Invoice)

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 13 (PART II, paragraph 41.2)

April 25, 1944

INVOICE

From: Officer in Charge,
US Navy Medical Supply Storehouse No. 12.

To: Medical Officer
USS LST #_____

Item number	Stock number	Article and description	Unit	Quantity
		ARMY-NAVY AUTOMATIC PROPERTY EXCHANGE MATERIEL		
1	14-255	BLANKET, field	No.	320
2	6-145	LITTER, metal pole	No.	100
3	NL-14	SPLINT SET, US ARMY	No.	4
4	NL-14	DRESSINGS, surgical	case	3
5	S1-3530	PLASMA 12 units in box	box	8
6	NL-14	SPLINT LITTER BARS	No.	24

MARKINGS: Red caduceus and words "ARMY-NAVY PROPERTY EXCHANGE".

Foregoing items are Army Medical Department property and must not be used on board for any reason. Delivery to Army Medical Department representatives will be made in accordance with instructions given to ship medical officers.

Ship Medical department shall retain custody and be responsible for delivery in accordance with instructions. Army representatives are responsible for unloading after delivery to them on board.

- -

USN Medical Supply Storehouse No. 12

_____
Ensign (HC) US Navy

RECEIVED_____1944, the above material.

_____
_____(MC) USNR

Sign and return two (2) copies to USN Medical Storehouse No. 12

APPENDIX M

ORGANIZATION FOR MEDICAL MATERIEL RESUPPLY SYSTEM

Contents

	Page
Personnel roster	M-2
Diagrammatic organization chart	M-3
Orientation map	M-4

NOTE: Specific reference, in the text of the report, is made to this Appendix as follows:

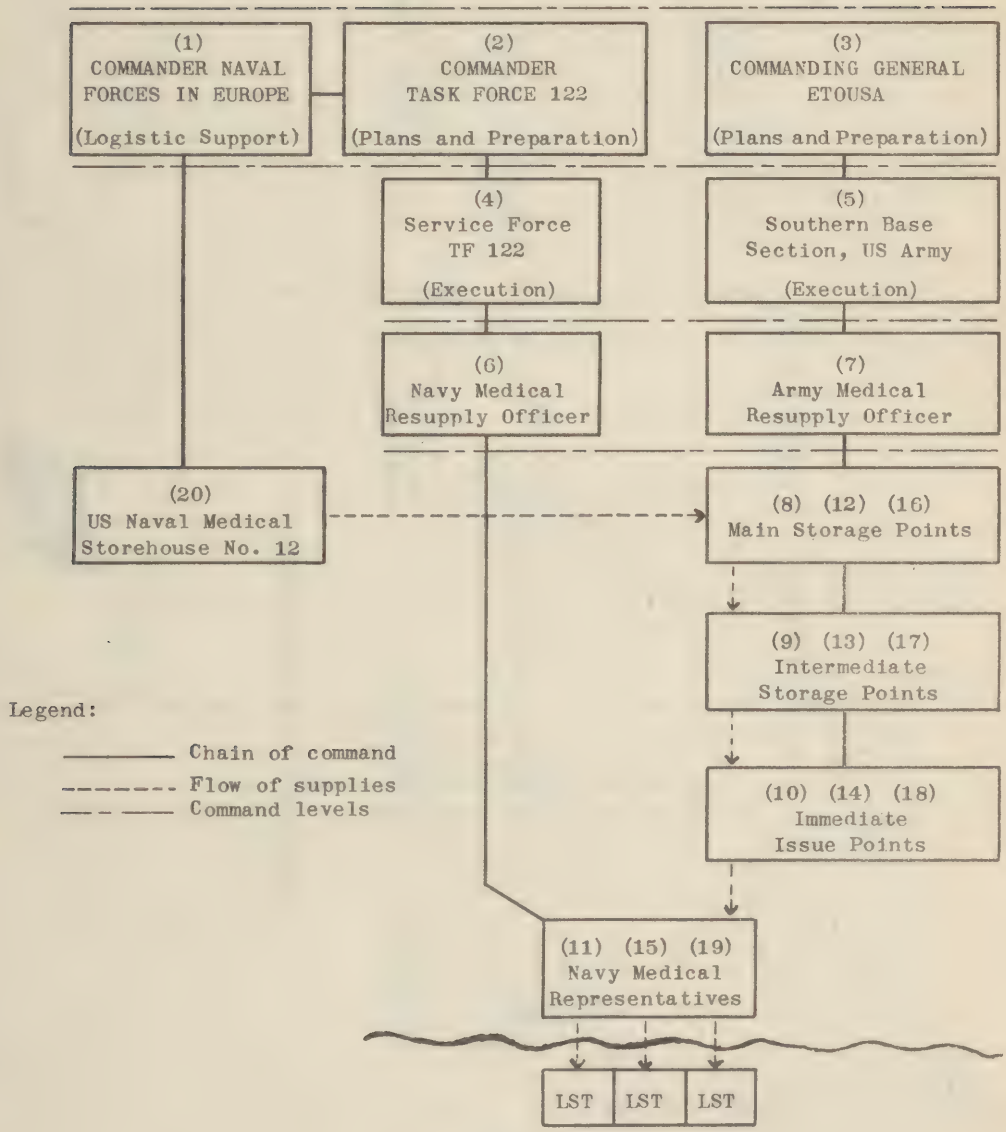
Page 6 (Part II, paragraph 14.4)
Page 21 (Part II, paragraph 43.2 and 43.3)
Page 30 (Part V, paragraph 81.)

ROSTER OF PERSONNEL INVOLVED
IN THE RESUPPLY ORGANIZATION

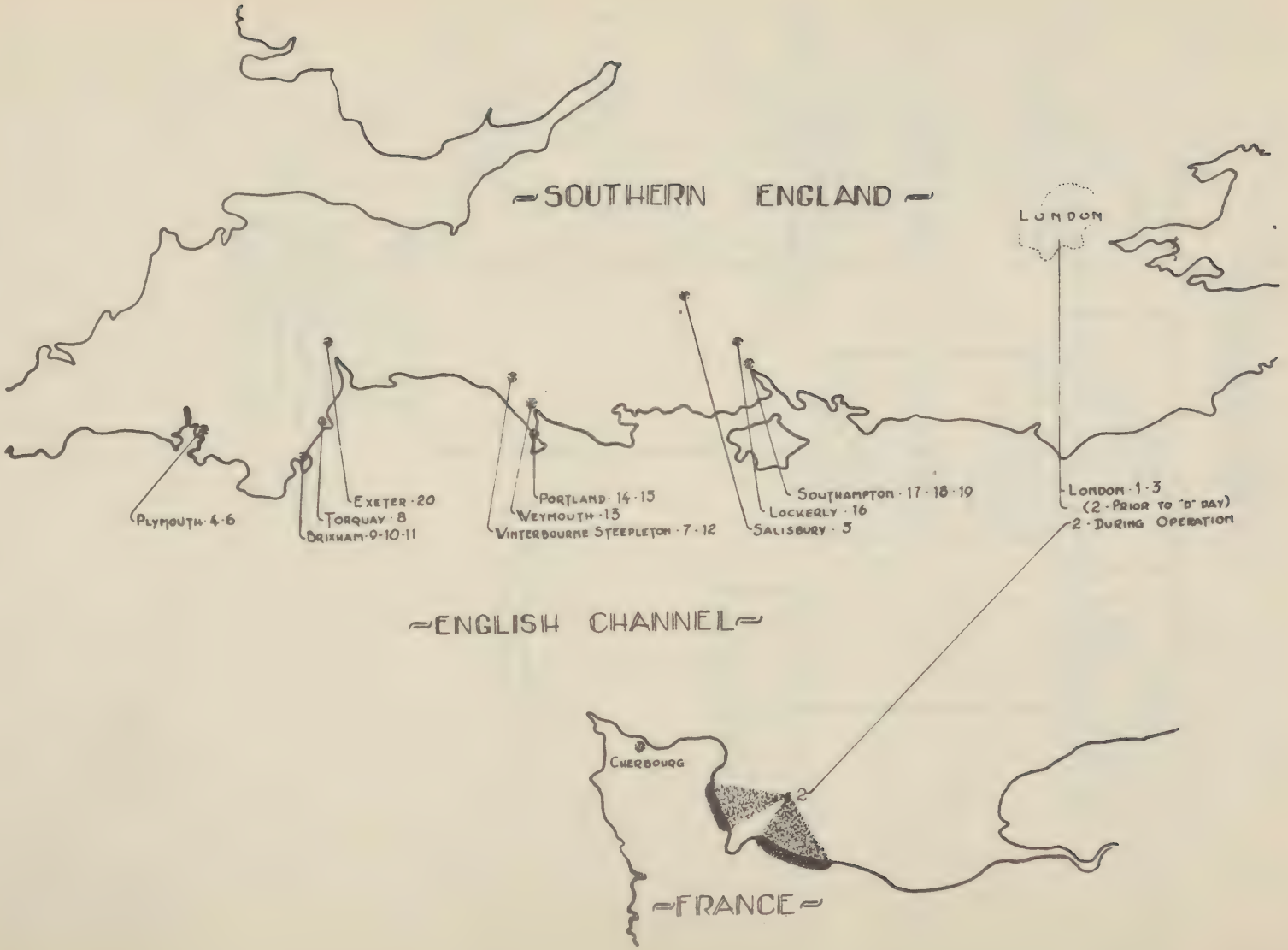
(Numbers indicate corresponding position of the headquarters of listed personnel on both the 1 lowing diagrammatic organization chart and orientation map.)

1	Captain J.H. CHAMBERS, MC, USN	Staff Medical Officer COMNAVEU.
2	Captain G.B. DOWLING, MC, USN	Staff Medical Officer TF122.
3	Brigadier General P.R. HAWLEY, MC, USA	Chief Surgeon ETOUSA.
4	Commander L.G. BELL, MC, USN	Staff Medical Officer SERFOR122.
5	Colonel R.E. THOMAS, MC, USA	Chief Surgeon SBS USA.
6	Lieut (jg) W.A. DuCHARME, HC, USN	Staff of Force Medical Officer TF122 (Operational Assistant to Staff Medical Officer SERFOR 122.)
7	Major C.L. GILBERT, MAC, AUS	Comdg. 66th Medical Depot Company.
8	2nd Lieut. W.H. KRUMMEL, MAC, AUS	Detach. "A", 66th Med. Depot Co.
9	Major ELOVZIN, MC, USA	Comdg. 49th Field Hospital.
10	(Combined with #9)	
11	Pharmacist J.H. BING, USN	USN Medical Representative. Brixham Area.
12	1st Lieut. MACGREGOR, MAC, AUS	Hqtrs 66th Medical Depot Company.
13	Lt. Colonel KNOBLACH, MC, AUS	Evacuation Officer, Portland-Weymouth Area.
14	1st Lieut. LADA, MAC, AUS	Assistant to above.
15	Pharmacist R.F. WARD, USN	USN Medical Representative, Portland Area.
16	Capt. HEBERT, MAC, AUS	Detach. 66th Med. Depot Co. (G-55)
17	Lt. Colonel PALMER, MC, USA	Comdg. 99th Ambulance Battalion.
18	1st Lieut. COLLIER, MAC, AUS	Detach. 99th Ambulance Bn.
19	Pharmacist G.V. BELL, USN	USN Medical Representative, Southampton Area.
20	Ensign L.K. THOMPSON, HC, USN	OIC, Naval Medical Storehouse #12.

ORGANIZATION
FOR MEDICAL RESUPPLY



RESTRICTED SECRET


SOUTHERN ENGLAND
LONDON
PLYMOUTH · 4 · 6
EXETER · 20
TORQUAY · 8
BRIXHAM · 9 · 10 · 11
PORTLAND · 14 · 15
WEYMOUTH · 13
WINTERBOURNE STEEPLETON · 7 · 12
SOUTHAMPTON · 17 · 18 · 19
LOCKERLY · 16
SALISBURY · 5
LONDON · 1 · 3
(2 · PRIOR TO "D" DAY)
2 · DURING OPERATION
ENGLISH CHANNEL
CHERBOURG
FRANCE

APPENDIX N

MEDICAL SECTION OF TF122 ACTION REPORT

(Submitted in July 1944)

NOTE: Specific reference, in the text of the report, is made to this Appendix, as follows:

Page 20 (PART III, paragraph 60)
Page 25 (PART IV, paragraph 70.4)

I. INTRODUCTION.

Medical Service of the Western Naval Task Force in Operation OVERLORD functioned according to plan.

The paramount task of the naval medical service was the seaward evacuation of casualties during the assault and build-up phase. Thus, the naval medical service formed a middle link in the chain of evacuation with the First U.S. Army on the far-shore and ETOUSA plus COMNAVEU on the near-shore.

Early in the planning period, a table of specific responsibilities, both joint and individual, was agreed upon by the responsible echelons of the Army and Navy forces involved. This allocation of responsibilities resulted in a sound basis of planning; each service had a definite plan of action. The high degree of coordination of action during the operational phase came as a natural result of this early understanding.

II. GENERAL INFORMATION.

1. Casualty handling.

Organized seaward casualty evacuation was primarily effected in LSTs supplemented by Hospital Carriers and APAs.

a. Medical personnel.

Availability - The medical personnel of the operational force was augmented for organized casualty evacuation by approximately 166 Navy medical officers, 100 Army medical officers, 2600 Navy hospital corpsmen and 200 Army enlisted operating technicians.

Operational assignment - Authorized ship's complements were augmented as follows: Each IST was assigned two Navy medical officers and twenty hospital corpsmen. During the early assault phase, the complements of these craft were further augmented by one Army traumatic surgeon and two enlisted assistants. The complement of each APA was augmented by three Navy medical officers, one hospital corps officer and ten hospital corpsmen. Each LCI(L) had two hospital corpsmen assigned to it. Three of the five Hospital Carriers were staffed with U.S. Army medical personnel; the remaining two, with British Army medical personnel.

Training - The Navy medical personnel for ISTs began to arrive in the ETO during the latter part of March and was put through an intensive indoctrination course at USNAASB, Fowey, Cornwall, England.

The Army medical personnel was given a joint indoctrination course by the Army surgical consultants and by the Navy force medical officer and his training officers.

b. Forces afloat.

Medical service to the forces afloat was normal except for the following:

i. When peak loads of battle casualties occurred.

ii. For organized casualty evacuation.

From the information available, medical preparation for battle afloat was adequate. Sea rescue and the handling of survivors was frequently complicated by the presence of casualties. The latter, for the most part, were evacuated to ISTs. A considerable number of casualties were evacuated to the U.K.

Casualty handling equipment - Casualty evacuation in ISTs on the scale anticipated in this operation necessitated the provision of special casualty handling equipment. Such equipment was required to facilitate the loading of casualties into ISTs from smaller craft. This equipment was developed and thoroughly tried out in practice exercises and proved most satisfactory under combat conditions.

c. Casualty records and reports.

Early in the planning stage a need was seen for a simple system of recording casualties evacuated from the far-shore. This need was envisioned because of anticipated volume of casualties to be handled and the fact that many small naval vessels and craft with limited office and clerical facilities were involved. For this reason, a form, "Running Record of Battle Casualties", was developed by this force. This form supplied shore commands in the U.K. with earliest possible information necessary for further casualty reporting to U.S. during the assault phase.

2. Medical Supplies.

a. Problem and requirements.

i. To "top-off" all craft and vessels to their commissioning allowance level and, to supplement that allowance where necessary, prior to the Operation.

ii. To provide sufficient medical materiel on LSTs to care for a maximum anticipated casualty lift, both for the initial phase and for the build-up.

iii. To equip or, where necessary, re-equip the Navy medical section of the beach battalions.

b. Preparation.

A medical estimate of the operational needs was prepared. A thorough study of the medical supply problem was made in conjunction with consultants from the Army and Navy. The medical logistic support section of COMNAVEU procured the supplies for the operational forces. Included in these supplies were certain items made possible by ETOUSA, namely:

Whole blood.
Penicillin.
Intravenous sulfonamide.
Surgical instrument kit (abdominal).

The medical materiel of the beach battalions was rechecked and deficiencies corrected. Medical jeeps and additional field equipment were provided by the Army Shore Party Brigade.

In accordance with the joint Army and Navy agreement on medical responsibilities, medical resupply points were established by the Army at the near-shore LST hards in Portland, Southampton and Brixham. The Army agreed further to load these supplies under the supervision of Navy medical representatives at these points.

Three hundred Army "Exchange Units of Medical Supplies" for delivery to the far-shore were handled in accordance with the medical plans and joint agreements. A "unit" consists of the following:

Blankets	each	320
Litters	each	100
Splint sets	each	4
Dressings	case	3
Plasma	box	8
Splint litter bars	each	24

c. Operation.

Replenishment of medical supplies on LSTs was effected at the LST hards in cooperation with ETOUSA through its representatives in the Southern Base Section. The maintenance of the stock levels on the hards, their rapid and efficient replenishment, and the maintenance of stock levels on the LSTs reflected most excellent teamwork.

Beach battalions found their initial medical supplies to be adequate when not lost in landing.

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The Army "Exchange Units of Medical Supplies" arrived on the far-shore in sufficient quantities to meet the needs. However, it was not always possible to land these "units" in the early trips of the LSTs.

III. SPECIFIC INFORMATION.

1. Far-shore. (Narrative of events - beaches OMAHA AND UTAH)

During the early assault phase, six medical sections of the 6th beach battalion and three sections of the 7th beach battalion were committed to beach OMAHA: six sections of the 2nd beach battalion to beach UTAH.

The first naval medical elements landed at H + 40 minutes. During the early period, much hand-carried equipment was lost due to personnel being debarked in deep water. Other medical supplies were lost in craft suffering damage by enemy action.

In spite of the loss of equipment, reports indicate that prompt first aid was administered on the beach in so far as the military situation would permit.

It was a military necessity as well as a humanitarian need to keep the beaches cleared of casualties. Therefore, early in the assault, casualties were placed in any type of landing craft available and despatched to APAs and LSTs.

In some cases, an unavoidable delay occurred on D day on OMAHA beach in which casualties were not cleared from the beaches for a period of from 4 to 8 hours. This was due to the natural early confusion resulting from strong opposition. Small craft were damaged and sunk, enfilading gunfire persisted and the movement of casualties was a dangerous procedure. On one occasion, a DUKW loaded with casualties spent several hours afloat before they were finally taken aboard an LST.

In both beach areas, many small first aid points were established very early. As the situation began to settle on D day, three evacuation points on OMAHA and one on UTAH were established in the line of the normal drift of casualties.

Natural topography, as well as the military situation, dictated the locating of the Navy medical evacuation points. On UTAH, the evacuation point continued to function in its original site whereas on OMAHA, by D ∕ 5, the evacuation points began to consolidate with the main axis of evacuation which was on EASY WHITE beach. This also was true of the far-shore party medical battalions.

The teamwork of the medical personnel in all forces was observed. This included the Army Air Evacuation group which started functioning at OMAHA beach on D ∕ 4 when 12 cases were evacuated by air. On D ∕ 5, 80 more were so evacuated and build-up progressed from that point on. It must be pointed out that the Plan did not call for this means of casualty evacuation until D ∕ 14.

The Navy Evacuation Control Officers went ashore with the NOICs. In the UTAH area, the Navy Evacuation Control officer acted as liaison between the Army and Navy and assisted the senior medical officer of the beach battalion. In the OMAHA area, the Navy Evacuation Control officer functioned at the Evacuation Control Center, conjointly with the Army Ground Force and Army Air Force evacuation officers. This unit was established on the main axis of evacuation, adjacent to the air field and the beach area in conjunction with the 60th and 61st Far-Shore Medical Battalions where a clearing holding unit was established and a final triage of casualties effected.

Estimated casualties evacuated as of 2400, D ∕ 18:

	OMAHA	UTAH	TOTALS
Sea	4,611	11,305	15,916
Air	3,822	1,384	5,206
	8,433	12,689	21,122

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2. Forces afloat

Medical service to the forces afloat was rendered in accordance with plan. Combat ships, auxiliary ships and craft provided medical service to their own personnel and, when overtaxed, evacuated to LSTs and other vessels. The latter was necessary on those ships suffering major materiel damage.

No untoward incident occurred during the approach to the assault area. However, sea rescue and casualty handling entered the picture rather early.

During the early assault phase, small craft and LCI(L)s bore the brunt of the action. At this time, the hospital corpsmen in LCI(L)s and like craft rendered invaluable medical service.

Many of the small craft suffered early materiel damage from beach obstacles, underwater explosions and from shore batteries. In spite of this handicap, the remaining craft rendered first aid and evacuated many casualties seaward. At times, the opposition off OMAHA was so intense that a great degree of confusion was inevitable. However, much credit is due to this personnel for the admirable way in which they conducted themselves.

LSTs began receiving casualties early on D day. In the UTAH area where the opposition was relatively less, it was possible to dry-out the LSTs which materially facilitated casualty loading. In the OMAHA area, drying-out was not expedient during the early assault phase. This necessitated the use of the specially developed casualty handling equipment.

As was expected, many of the early evacuated casualties had received little or no preliminary first aid. This difficult task of patient care was met by the medical personnel in LSTs.

On D + 1 Hospital Carriers arrived off both beaches. These vessels were somewhat unsuitable for the task assigned. This was due to several causes, namely: a lack of briefing of the crew, relatively low casualty capacity, ambulance boats designed for British and not American stretchers and duality of operational control. Nevertheless, these factors did not mitigate against the enthusiastic effort to contribute their share in the operation.

Certain of the APAs, APs and AKAs carried casualties on their return trip to the U.K. Particular mention should be made of the USS BAYFIELD (APA 30) and the USS ACHENAR (AKA 54). Both rendered invaluable service in the reception and treatment of casualties during certain short periods of absence of LSTs and Hospital Carriers.

The general condition of casualties evacuated by LSTs from the far-shore is shown in the following excerpt from the report of the commanding officer of a Navy Base Hospital: "The Commanding Officer wishes to bring to the attention of the Commander of Naval Forces in Europe the generally excellent condition of combat casualties which have been brought to this hospital. This observation...has been particularly noticeable among the patients transferred on LSTs.....all measures for treatment of shock, hemorrhage, and infection, including the use of sulfa drugs, and the administration of plasma, penicillin and whole blood has been adequately and intelligently carried out. The excellent primary treatment...has been reflected in their superb morale upon arrival at this hospital."

3. Near-shore.

Near-shore facilities were under the joint control of the U.S. Army and Navy. At this transition point, casualties were unloaded and medical resupplies loaded. The three receiving points (hards) for casualties evacuated by LSTs were provided at Portland, Southampton and Brixham. The latter was primarily set up as a reserve and was not used. The other two received the majority of casualties evacuated by this force from the far-shore.

The Army, being responsible on the near-shore for the receipt and hospitalization of all casualties, made all necessary provisions. COMNAVEU supplemented the Army facilities with the U.S. Navy Base Hospital No. 12 and all Navy medical facilities on the near-shore.

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The Army debarked the casualties at the near-shore. The Navy hospital corps officers, one at each LST casualty receiving point, provided the necessary liaison between the incoming vessels and the near-shore Army groups for debarking of casualties from and the medical resupply to the ships.

The near-shore facilities functioned most satisfactorily. One exception so far reported was at Portland from D ∕ 4 to D ∕ 7 when three convoys comprised of 67 LSTs were awaiting unloading facilities simultaneously. Operations insisted on the priority of loading of ships regardless of casualties. Further, because of congestion, LSTs were kept outside of the breakwater. This necessitated such debarking of casualties as was possible to be accomplished by LCTs. Ten LCMs and fifteen LCVPs which were made available, could not be used because of rough water. The boat trip was a long and rough one and was protested by the Army and Navy medical officers. After 24 hours of this, a British "side-wheeler" was assigned the task. This however, only carried 36 litters and was difficult to load and unload. It was found unsatisfactory. The situation was most satisfactorily solved by "marrying" LCTs to LSTs, unloading the casualties into the LCTs and taking them to LCT hards made available for this purpose. In one period of just over 3 hours, approximately 1100 patients were thus evacuated.

Great credit is due the Army for the efficient and effective near-shore arrangements for casualties. It is not within the scope of this report to discuss this subject which is covered in detail by an Army report.

Approximate totals of casualties debarked at near-shore hards are as follows:

PORTLAND (Total - 12834)

Date	Casualties	Date	Casualties
D	19	D ∕ 11	1
D ∕ 1	543	D ∕ 12	464
D ∕ 2	17	D ∕ 13	562
D ∕ 3	1466	D ∕ 14	800
D ∕ 4	2269	D ∕ 15	291
D ∕ 5	971	D ∕ 16	3
D ∕ 6	1052	D ∕/17	1
D ∕ 7	1102	D ∕ 18	301
D ∕ 8	854	D ∕ 19	240
D ∕ 9	329	D ∕ 20	185
D ∕ 10	1144	D ∕ 21	7
		D ∕ 22	213

SOUTHAMPTON (Total - 6065)

Date	Casualties	Date	Casualties
D	0	D ∕ 11	579
D ∕ 1	0	D ∕ 12	309
D ∕ 2	280	D ∕ 13	258
D ∕ 3	138	D ∕ 14	1
D ∕ 4	1439	D ∕ 15	324
D ∕ 5	419	D ∕ 16	0
D ∕ 6	486	D ∕ 17	0
D ∕ 7	194	D ∕ 18	227
D ∕ 8	280	D ∕ 19	1
D ∕ 9	279	D ∕ 20	86
D ∕ 10	204	D ∕ 21	263
		D ∕ 22	298

IV. COMMENTS.

1. Personnel casualties.

Analysis - Information contained in battle casualty analysis submitted by CTF 127 is as follows:

The data for the compilation of the following information was obtained from the "Running Record of Battle Casualties" used during approximately the first eleven days of the operation.

The analysis and classification of wounds as herein tabulated probably does not present an accurate clinical picture of the type and extent of wounds and injuries sustained by U.S. Army and Navy personnel. It is a cursory review taken from the record compiled under battle conditions when a large number of casualties were being received aboard ship for treatment and evacuation.

The ratio of Army to Navy wounded analyzed is approximately 11:1. This ratio cannot be used as a basis for comparison of the type of wounds received. Certain inferences, however, appear to be indicated as follows:

The Navy received slightly more wounds per man.

Of the Navy wounded, a higher percentage were severe.

Burns and blast injuries, wounds of head, face and neck, and simple fractures were higher among Navy personnel wounded.

Extremity wounds in the Army were 13% higher than Navy.

Injuries of the extremities, due to accident, were approximately four times as high in the Army as compared to Navy.

The percentage of chest wounds among Army personnel was nearly twice that of Navy.

Casualties caused by disease among Army personnel approximately doubled that of the Navy.

Conclusions, based on the foregoing, are drawn for this operation only. Eighteen types of wounds are tabulated and a little less than a thousand Navy wounded accounted for. This is not considered a sufficiently large figure from which to anticipate wounds among Navy personnel in future operations, except that one-half to two-thirds of all wounds will be sustained according to the situation opposed. There are over ten thousand Army wounded, which figure is considered sufficient to anticipate wounds and percentage of types in future amphibious assaults.

The tabulation of casualties among prisoners of war that were evacuated is included only as a matter of interest. Analysis shows the following:

Wounds of the extremities are found in approximately the same percent of Axis Army wounded as in U.S. Army wounded.

Wounds of the head, face, and neck, in the Axis Army wounded occur in lower percentage than in the U.S. Army wounded.

Wounds of the chest and abdomen in the Axis Army wounded occur in higher percentages than in U.S. Army wounded.

2. Casualty evacuation statistics based on organized casualty reports D through D + 11:

a. LSTs.

Trips made with casualty loads.

A total of 106 LSTs (WNTF) participated in the operation. Of these, 95 carried casualties on one or more return trips from the far-shore. Of these 95 -

49 made 1 trip
41 made 2 trips
4 made 3 trips
1 made 4 trips

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BATTLE CASUALTY ANALYSIS DERIVED FROM RUNNING RECORD OF BATTLE CASUALTY REPORTS
RECEIVED FROM D THROUGH D + 11.

TYPE	Army	Navy	Total	Percent Army	Percent Navy	Wounds per Man - Army	Wounds per Man - Navy
WOUNDED	10,864	968	11,832	91.8	8.2		
WOUNDS	13,332	1,516	14,838	89.8	10.2	1.23	1.57

Types of Wounds	U.S. Army	U.S. Navy	Total	Percent Army	Percent Navy	Percent Total Army Wounded	Percent Total Navy Wounded
Burns	127	43	170	74.7	25.3	0.95	2.84
Head, Face and Neck	1498	254	1752	85.6	14.5	11.25	16.74
Chest	1471	101	1572	93.6	6.4	11.05	6.66
Abdomen	245	23	268	91.4	8.6	1.80	1.52
Extremities							
-due to enemy	7702	655	8357	92.2	7.8	57.81	43.21
-accident	550	18	568	96.8	3.2	4.13	1.19
-s.fracture	108	80	188	57.4	42.6	0.81	5.27
-s.fracture accident	245	6	251	97.6	2.4	1.80	0.40
-comp.fracture	254	47	301	84.4	15.6	1.91	3.10
-traumatic amputations	27	4	31	87.1	12.9	0.20	0.26
Total	8886	810	9696	91.6	8.4	66.70	53.43
Minor Wounds	108	28	136	79.4	20.6	0.81	1.85
Blast Injuries	220	205	425	51.8	48.2	1.65	13.52
Groin	63	6	69	91.3	8.7	0.47	0.40
Spinal cord	24	3	27	88.9	11.1	0.18	0.20
Gas Gangrene	4	0	4	100.0	0.0	0.03	0.00
Mental Disease	137	13	150	91.3	8.7	1.03	0.86
Cardiac Disease	4	2	16	66.7	33.3	0.03	0.13
Urinary Calculi	3	1	4	75.0	25.0	0.02	0.07
Other Diseases	532	27	559	95.2	4.8	3.99	1.78
TOTALS	13322	1516	14838	89.8	10.2	100.00	100.00

TRIAGE	U.S. Army	U.S. Navy	Total	Percent U.S. Army	Percent U.S. Navy
A - Ambulatory	3651	357	4008	91.3	8.7
B - Transportable	6620	500	7120	93.0	7.0
- non-transportable	593	111	704	84.2	15.8
TOTALS	10864	968	11832	91.8	8.2

PRISONERS OF WAR

Wounded Casualties 876
Total Wounds 1,328

Type of Wounds	Number	Percent
Burns	7	0.53
Head, face, and neck	116	8.73
Chest	234	17.62
Abdomen	34	2.56
Extremities	899	67.70
Minor Wounds	4	0.30
Mental Diseases	1	0.08
Groin	13	0.97
Spinal Cord	1	0.08
Gas Gangrene	1	0.08
Blast	6	0.45
Other Diseases	12	0.90
TOTALS	1328	100.00

TRIAGE

Triage	Number	Percent
A - Ambulatory	179	13.5
B - Transportable	328	24.7
- non-transportable	68	5.1
TOTALS	575	100.0

Casualties carried.

Avg. per LST on 1st trip - 70.24 (6673 casualties)
Avg. per LST on 2nd trip - 106.56 (4369 casualties)
Avg. per LST on 3rd trip - 76.0 (304 casualties)
Only 1 LST made a 4th trip - (179 casualties)

Avg. per LST for the period covered by this report - 78.4.

Largest single load recorded - 331.

Specific LST loads over 300 casualties - 2
Specific LST loads over 200 casualties - 16
Specific LST loads over 100 casualties - 288
Specific LST loads less than 100 - 101

Number of casualty loads by LSTs - 147

b. APAs, APs, AKAs.

Of the ten involved in the operation, two made two casualty evacuations to the near-shore, six made one and two made none.

Total casualties evacuated - 560
Average load - 56

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c. Hospital Carriers.

Of the five hospital carriers involved, one completed one evacuation, two completed two, one completed three and one made none (mined).

Total casualties evacuated - 2272
Average load - 284
Largest single load - 643

d. LCI(L)s.

Six casualties were returned to the near-shore by this type craft.

e. Summary.

Percentage of casualties evacuated -

by LSTs	79.63%
by APAs, etc.	3.86
by Hospital Carriers	16.46
by LCI(L)s	0.04

V. RECOMMENDATIONS.

1. Planning stage.

That joint Army and Navy agreements on zones of responsibility be drawn up as a preliminary step for all amphibious operations.

That a medical estimate of the situation be made early in the planning stage, keeping it current in order to have a concrete basis for operational planning.

That the force medical officer and certain of his key personnel be briefed in the early planning stage.

That medical personnel for evacuation be made available in sufficient time to permit reasonable training and indoctrination.

That joint training of the medical personnel of the beach and shore party be stressed.

That the casualty evacuation vessels be made available sufficiently early for such changes as may be necessary by the medical personnel previously trained.

That sufficient realistic conjoint casualty exercises and demonstrations be effected for the purpose of coordination and teamwork.

That all vessels and craft be "topped off" with medical supplies prior to the operation.

That the first aid instruction be emphasized to all personnel.

That small-boat crews, especially for assault craft, be thoroughly trained in their phase of casualty handling (shore-to-ship phase).

That whole blood and penicillin be supplied to the evacuation vessels having proper refrigeration facilities.

That the Army "Exchange Unit of Medical Supplies" be charged to Navy lift but shown on the Army load Manifest in order to facilitate the unloading on the assault landing beach.

That a Navy Evacuation Control Officer be trained conjointly with the Far-Shore Party and Beach Party.

2. Operational Stage.

That operational casualty reporting be as simple as possible consistent with practical considerations.

That such alteration of beach medical equipment be made as battle experience dictates, including medical transportation and such equipment as necessary for maintenance of the evacuation points after the initial assault.

That the Navy Evacuation Control Officer be attached to the Headquarters Staff of the Far-Shore Party as representative of the Force Medical Officer.

That when Hospital Carriers are employed, they be placed under the control of the operational force for training, indoctrination and final employment.

That the methods of debarkation of casualties by marrying LCTs with LSTs be recognized as a valuable adjunct.

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APPENDIX O

PROPOSED BASIC OPERATIONAL MEDICAL MATERIEL
ALLOWANCE, for LSTs, Complete.

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NOTE: Specific reference, in the text of the report, is made to this Appendix as follows:

Page 24 (PART IV, paragraph 70.2, iii.)

PROPOSED BASIC OPERATIONAL MEDICAL MATERIEL
ALLOWANCE, for LSTs, Complete

(Based on:
Average maximum LST casualty load - 150 patients of which 2/3 are stretcher and 1/3 are ambulatory.
Average time casualties to be on board - 36 hours.
Operational medical personnel complement - 2 medical officers and 20 hospital corpsmen.)

Note: It is intended that issue of items indicated by an asterisk in the following list is to be made in the theater of operation and are included herein for information only.

ITEM No.	STOCK No.	DESCRIPTION	UNIT	QUANTITY REQUIRED
1	1-110	ALCOHOL	½ gal tin	10
2	1-325	ETHER	½ lb tin	20
3	2-140	BATTERY, dry (for flashlight, hand)	one	168
4	6-015	BASIN, dressing	one	10
5	6-035	BEDPAN	one	10
6	6-145	LITTER, metal, pole	one	200
7	6-290	URINAL (metal)	one	10
8	14-045	FIELD MEDICAL UNIT No. 8 (Pack, Splints, Combat)	one	2
9	14-255	BLANKET, field	one	600
10	S1-1001	GAS GANGRENE ANTITOXIN, trivalent	vial	54*
11	S1-1130	PENICILLIN, dry pwdr. 100,000 Oxfd Units	amp	10*
12	S1-1945	SERUM ALBUMIN	pkg	30*
13	S1-2000	TETANUS ANTITOXIN, USP, 1,500 units	syringe	40*
14	S1-2094	TETANUS TOXOID, alum precipitated	50cc vial	5*
15	S1-2370	DETERGENT EMULSION	1 pt bot	25
16	S1-2618	GAS, oxygen (1650 gal.cap. cylinder)	one	9
17	S1-3361	OINTMENT BAL	½ oz tube	100
18	S1-3375	OINTMENT PROTECTIVE (S-330)	3 oz tube	100
19	S1-3425	PARALDEHYDE	½ lb bot	4
20	S1-3790	SOL. DEXTROSE, 5% in nor.sal. 1000cc vacoliters	6 in case	6
21	S1-3795	SOL. NORMAL SALINE, in 1000cc container	6 in case	2
22	S1-4021	ATABRINE, 0.1 gm	1000 bot	1
23	S2-1550	SHEET WADDING,cotton, 32" x 6 yd	24 in pkg	1
24	S2-2650	HYDROGEN PEROXIDE, 8%	1 pt bot	6
25	S14-020	BAG, water, field, sterilizing (Lyster)	one	4
26	NL 1	WHOLE BLOOD (Blood bank) in 1 pt container with fittings, tubing and injection needle	one	20*
27	NL 2	BANDAGE, plaster of Paris, 6" wide	roll	120
28	NL 2	BLOOD BANK, equipment for, Std Navy, overseas, complete	one	1
29	NL 2	LAMP, plain bulb, for 2 cell flashlight	one	20
30	NL 2	STRAP, bunk, elastic	one	200
31	NL 2	UNIT A - Case, casualty treatment, special, complete, for IST. (Material to treat 25 battle casualties.) For contents, see page 3 of this Appendix	one	8
32	NL 2	UNIT B - Pouch, individual, medical officer, special, complete. (For use by medical officers in casualty handling LSTs.) For contents, see page 3 of this Appendix	one	2
33	NL 2	UNIT C - Pouch, individual, hospital corpsman, special, complete. (For use by hospital corpsmen in casualty handling LSTs.) For contents, see page 3 of this Appendix	one	20

ITEM No.	STOCK No.	DESCRIPTION	UNIT	QUANTITY REQUIRED
34	NL 3	OUTFIT, emergency, surgical, complete. (For medical officers in casualty handling LSTs.) For contents, see page 4 of this Appendix . .	one	1
35	NL 16	RUNNING RECORD OF BATTLE CASUALTIES. (A suitable standard form for all casualty handling LSTs.)	pad	-

NL-2 UNIT A - Case, casualty treatment, special, complete, for LST. (Material to treat 25 battle casualties.)

(Listed as Item 31 of Basic Allowance.)

ITEM No.	STOCK No.	DESCRIPTION	UNIT	QUANTITY REQUIRED
1	1-495	MORPHINE TARTRATE	syrette	80
2	1-975	ACID, ACETYLSALICYLIC, 0.324 gm	100 bot	2
3	1-995	CODEINE SULFATE, 0.0162 gm	100 bot	1
4	2-066	BANDAGE, comp. 4", camouf.	1 in pkg	5
5	2-091	BANDAGE, gauze, 2", camouf.	doz	1
6	2-096	BANDAGE, gauze, 3", camouf.	doz	1
7	2-131	BANDAGE, triangular, comp. camouf.	one	3
8	2-300	CELLULOSE, 12" wide	2 lb roll	1
9	2-345	COTTON, absorbent	1 lb roll	3
10	2-391	DRESSING, battle, large, camouf.	one	30
11	2-393	DRESSING, battle, medium, camouf.	one	10
12	2-396	DRESSING, battle, small, camouf.	one	10
13	2-401	DRESSING, head, adjust, comp, camouf.	one	4
14	2-425	GAUZE, plain	25 yd roll	1
15	2-825	PINS, safety, large	doz	2
16	2-836	PLASTER, adhesive, 2" x 5 yd, camouf.	spool	3
17	2-841	PLASTER, adhesive, 12" x 10 yd, camouf. . . .	roll	1
18	2-930	SPLINT, basswood for	12 in set	2
19	2-1300	THERMOMETER, clinical	one	1
20	2-1310	TOURNIQUET, web	one	6
21	7-040	BOOK, memorandum	one	2
22	7-150	PENCIL, indelible	one	2
23	13-130	PAD, heat, chemical	one	12
24	13-135	PAD, heat, chemical, refill for	one	36
25	13-175	SOAP, hand	cake	4
26	13-190	SUTURE, sur.gut.untrt.boil.in needle.#0 . . .	tube	6
27	13-195	SUTURE, sur.gut.mild trt.boil.in needle.#0 .	tube	6
28	S1-2290	BRANDY	2 oz bot	10
29	S1-3531	PLASMA, human dried,inj.assemb. 500cc dilu. .	pkg	8
30	S1-3808	SULFADIAZINE, 24 1 gm tablets	pkg	1
31	S1-3812	SULFANILAMIDE, pwdr. 5 gm packet	5 in pkg	15
32	S1-4340	SULFANILAMIDE, 0.324 gm	1000 bot	2
33	S1-4380	SULFATHIAZOLE, 0.5 gm	500 bot	2
34	S4-466	PENCIL, dermatographic	one	2
35	S13-450	INSECT REPELLENT, liquid	2 oz bot	3
36	S13-451	INSECTICIDE, powder	2 oz pkg	3
37	S16-2007	EMERGENCY MEDICAL TAG	25 in pad	4
38	NL 2	DRESSING, burn, sterile, (Tulle Gras, cut in approx. 3½" squares - or vaseline gauze). . .	24 in box	1
39	NL -	(Suitable container for packaging - An expendable, waterproofed box or carton secured with wire or steel straps.)	one	1

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NL-2 UNIT B - Pouch, individual, medical officer, special, complete. (For use by medical officers in casualty handling LSTs.)

(Listed as Item 32 of Basic Allowance.)

ITEM No.	STOCK No.	DESCRIPTION	UNIT	QUANTITY REQUIRED
1	2-030	BADGE, arm, red cross	one	2
2	2-275	CATHETER, rubber, soft, 18F	one	1
3	2-1300	THERMOMETER, clinical	one	1
4	2-1310	TOURNIQUET, web	one	1
5	3-045	CASE, pocket	one	1
6	3-766	SHEARS, bandage, angular, 5½"	one	1
7	3-860	STETHESCOPE	one	1
8	6-095	FLASHLIGHT, hand, without battery	one	1
9	6-125	JACKNIFE.	one	1
10	7-040	BOOK, memorandum.	one	1
11	7-150	PENCIL, indelible	one	1
12	S2-1460	POUCH, Hospital Corps, large, empty	one	1
13	S4-466	PENCIL, dermatographic.	one	1

NL-2 UNIT C - Pouch, individual, hospital corpsmen, special, complete. (For use by hospital corpsmen in casualty handling LSTs.)

(Listed as Item 33 of Basic Allowance.)

ITEM No.	STOCK No.	DESCRIPTION	UNIT	QUANTITY REQUIRED
1	2-030	BADGE, arm, red cross	one	2
2	2-275	CATHETER, rubber, soft, 18F	one	1
3	2-1300	THERMOMETER, clinical	one	1
4	2-1310	TOURNIQUET, web	one	1
5	3-766	SHEARS, bandage, angular, 5½"	one	1
6	6-095	FLASHLIGHT, hand, without battery	one	1
7	6-125	JACKNIFE	one	1
8	7-040	BOOK, memorandum	one	1
9	7-150	PENCIL, indelible	one	1
10	14-285	CASE, scalpel and forceps, canvas, complete . .	one	1
11	S2-1480	POUCH, hospital corps, small, empty	one	1
12	S4-466	PENCIL, dermatographic	one	1

NL-3 OUTFIT, emergency, surgical, complete. (For medical officers in casualty carrying LSTs.)

(Listed as Item 34 of Basic Allowance.)

CASE No. 1
(Not an item of resupply)

ITEM No.	STOCK No.	DESCRIPTION	UNIT	QUANTITY REQUIRED
1	2-005	ADAPTER, glass	one	5
2	2-535	LOCAL ANAESTHETIC OUTFIT, complete	one	1
3	2-655	NEEDLE, spinal puncture, 3½", 18 ga	one	3
4	2-660	NEEDLE, spinal puncture, 3½", 20 ga	one	3
5	2-875	SHUT OFF, screw type	one	5
6	2-1345	TUBE, glass, "Y"	one	3
7	3-010	ASPIRATOR AND INJECTOR (Potain)	one	1
8	3-035	CASE, diagnostic, electric	one	1
9	3-040	CASE, forceps, hemostatic, complete	one	2
10	3-350	FORCEPS, sponge holding, 10"	one	8
11	3-670	ROLL, surgical, instrument, complete	one	1
12	3-840	SPHYGMOMANOMETER, aneroid	one	2
13	3-925	TUBE, trachea, full curved, No. 4	one	4
14	6-020	BASIN, pus	one	5
15	6-265	TOWEL, hand	one	12
16	6-280	TRAY, surgical, instrument, small	one	2
17	14-190	F.M.U. No. 36, ROLL #5, only.	one	1
18	14-465	ROLL, forceps, dental, canvas, complete	one	1
19	S2-2458	TUBE, duodenal, 14F, complete (Levin)	one	4
20	S3-900	KNIFE, amputating, 7½"	one	1
21	S3-1272	SHEARS, plaster of Paris, 14½" (Stille)	one	1
22	S12-180	SYRINGE, anaes. conduct. cartridge type.	one	1
23	S15-785	SURGERY, Principles and Practice of War Surgery (Vols. 1, 2, 3, 4 & 5)	set	1
24	S16-2035	MANUAL, First aid for battle casualties	one	1
25	NL 2	SHEETING, rubberized, cloth, for surgical operations, capable of repeated sterilization by boiling (BATISTE)	yard	25
26	NL 3	KNIFE, plaster, 5"	one	2
27	NL 3	APPARATUS, suction (Levin type) portable, electric	one	1
28	NL 3	APPARATUS, drainage & suction (Wangensteen type)	one	1
29	NL 6	LANTERN, (headlight type) battery operated (4 cell) with headband (FSSC 17 L 7780)	one	10
30	NL 6	OUTFIT, OXYGEN THERAPY, (a quick coupling system, complete with flowmeters and tubing for nasal masks for multiple administration from one or more cylinders.)	one	1
31	NL -	CONTAINER (Suitable chest or suitcase for items listed.)	one	1

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CASE No. 2
(Item of resupply)

ITEM No.	STOCK No.	DESCRIPTION	UNIT	QUANTITY REQUIRED
1	1-190	CALCIUM GLUCONATE, 10%	10cc amp	10
2	1-495	MORPHINE TARTRATE	syrette	50
3	1-590	PHENOL	1 lb bot	2
4	1-670	PROCAINE HYDROCHLORIDE	5 gm bot	2
5	1-675	PROCAINE HYDROCHLORIDE	100 mg amp	10
6	1-680	PROCAINE HYDROCHLORIDE	150 mg amp	10
7	1-730	SOAP, soft	2 lb jar	1
8	1-915	ATROPINE SULFATE, 0.0006 gm	20 in tube	5
9	1-1222	WATER FOR INJECTION	50cc amp	30
10	2-145	BLADE, knife, detach. #10	6 in pkg	2
11	2-150	BLADE, knife, detach. #11	6 in pkg	2
12	2-155	BLADE, knife, detach. #12	6 in pkg	2
13	2-175	BLADE, razor, safety	5 in pkg	1
14	2-425	GAUZE, plain	25 yd roll	2
15	2-450	GLOVES, rubber, operating, size 7½	pair	4
16	2-455	GLOVES, rubber, operating, size 8	pair	4
17	2-460	GLOVES, rubber, operating, size 8½	pair	4
18	2-545	MUSLIN	yard	10
19	2-555	NEEDLE, hypo. 3/4", 23 ga	doz	1
20	2-580	NEEDLE, hypo. 2", 18 ga	doz	1
21	2-745	NEEDLE, sut.surg.½ cir. cut.edge. #1	6 in pkg	2
22	2-750	NEEDLE, sut.surg.½ cir. cut.edge. #3	6 in pkg	2
23	2-775	NEEDLE, sut.surg.taper pt. #1	6 in pkg	2
24	2-841	PLASTER, adhesive, 12" x 10 yd. camouf.	roll	2
25	2-1015	SUTURE, dermal, #000	tube	12
26	2-1020	SUTURE, dermal, #0	tube	12
27	2-1025	SUTURE, dermal, #3	tube	12
28	2-1035	SUTURE, silk, #0	tube	12
29	2-1045	SUTURE, silk, #2	tube	12
30	2-1055	SUTURE, silk, in needle, #0	tube	24
31	2-1060	SUTURE, silk, in needle, #2	tube	24
32	2-1230	SYRINGE, intramuscular, glass, 2cc	one	2
33	2-1240	SYRINGE, intramuscular, glass, 10cc	one	2
34	2-1245	SYRINGE, intramuscular, glass, 20cc	one	4
35	4-1105	TUBING, rubber, ¼"d, 1/16" wall	12' lgnth	5
36	11-1305	RUBBER DAM	3' roll	1
37	S1-2295	CAFFEINE & SOD. BENZOATE, INJ. 0.5 gm	2cc amp	20
38	S1-2470	EPHEDRINE TARTRATE, 0.082 gm, 1½cc.	syrette	20
39	S1-3040	MERTHIOLATE TINCTURE	1 pt bot	4
40	S1-3310	NIKETHAMIDE, 25% sol	1½cc amp	25
41	S1-3440	PENTOBARBITAL SODIUM, 1½ gr caps	500 bot	1
42	S1-3450	PENTOTHAL SODIUM	.5 gm amp	36
43	S1-3531	PLASMA,dried (500cc diluent)	pkg	6
44	S1-3741	SOD.AMYTAL, .5 gm with sterile water	pkg	20
45	S1-3783	SODIUM SULFADIAZINE	5 gm amp	30
46	S1-4335	SULFADIAZINE, .5 gm	500 bot	2
47	S2-902	DRAIN, rubber, empyema, 5/16"	one	4
48	S2-903	DRAIN, rubber, empyema, 3/8"	one	4
49	S2-904	DRAIN, rubber, empyema, 1/2"	one	4
50	S4-466	PENCIL, dermatographic	one	3
51	S11-480	NEEDLE, anaes. cartridge type, 7/8", 26 ga	doz	1
52	S11-625	SYRINGE, anaes.conduct.cartg.for	100 in pkg	2

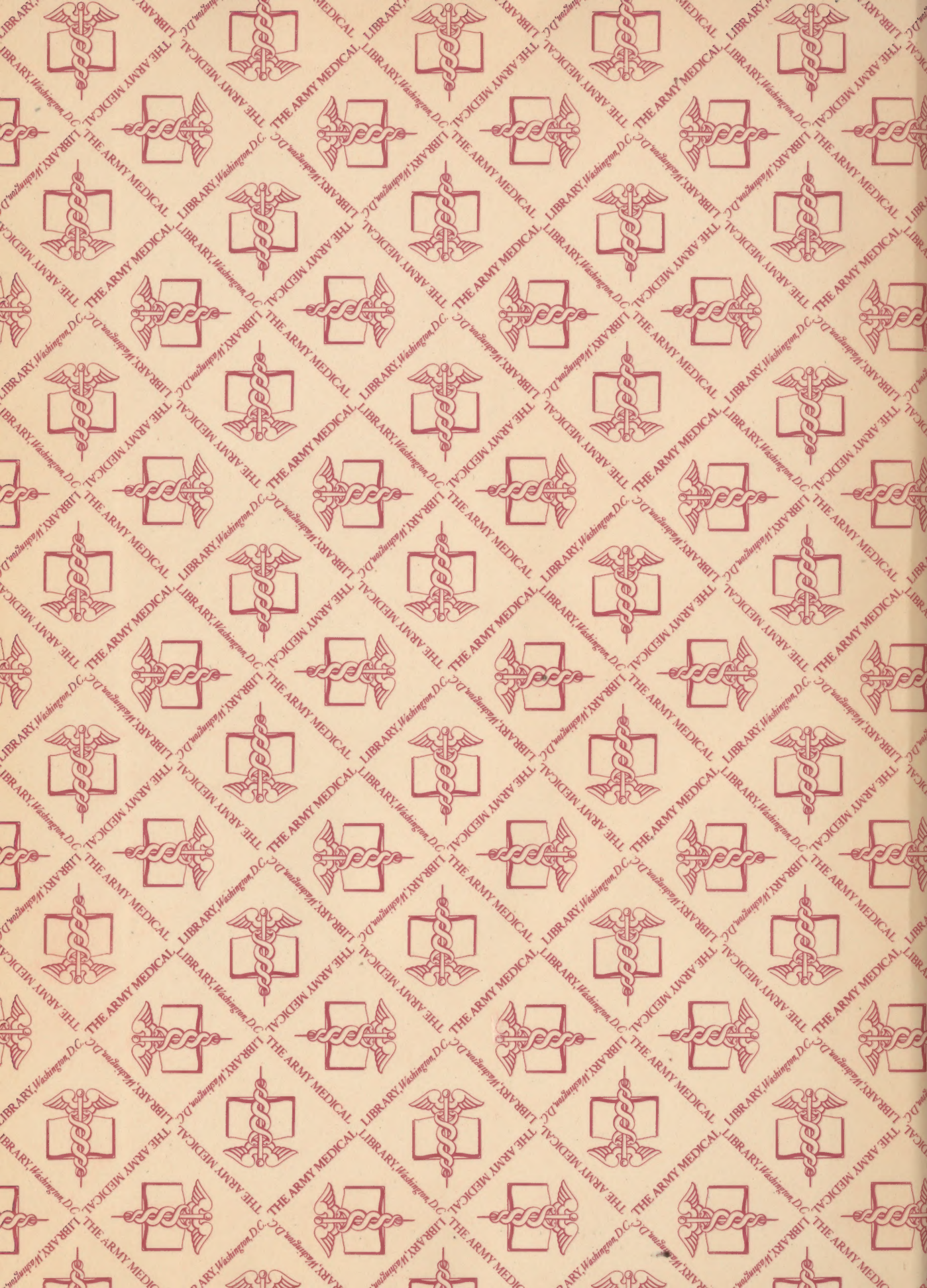
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CASE No. 2 (Cont'd)
(Item of resupply)

ITEM No.	STOCK No.	DESCRIPTION	UNIT	QUANTITY REQUIRED
53	NL 1	AMINOPHYLLINE, NNR, .24 gm, (intravenous) . .	24 in box	1
54	NL 1	ATROPINE SULFATE, 1/200 gr. ophthalmic discs . .	12 in tube	12
55	NL 1	HOMATROPINE HYDROBROMIDE, 1/250 gr. ophthalmic discs	12 in tube	12
56	NL 1	FLUORESCEIN, 1/250 gr. ophthalmic discs.	12 in tube	12
57	NL 2	DRESSING, burn, sterile (Tulle Gras or Vaseline gauze, cut in approx. 3½" square.). . . .	24 in box	4
58	NL 2	LAMP, plain bulb (for item 29 of Case #1) . . . (FSSC 17 L 6365)	one	10
59	NL 2	SPONGES, surgical, sterile, 2" x 2"	20 in pkg	12
60	NL 2	SPONGES, surgical, sterile, 4" x 4"	20 in pkg	12
61	NL 2	SPONGES, abdom., taped, sterile	6 in pkg	4
62	NL -	CONTAINER (Suitable for packaging. Expendable, waterproofed box or carton secured with wire or steel straps.)	one	1

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